

Exhibit 2

Page 1

1 UNITED STATES DISTRICT COURT
2 DISTRICT OF NEW JERSEY

3 -----|
4 IN RE JOHNSON & JOHNSON | MDL No. 16-2738 (MAS)(RLS)
5 TALCUM POWDER PRODUCTS |
6 MARKETING, SALES PRACTICES, |
7 AND PRODUCTS LIABILITY |
8 LITIGATION |
9 -----|

10 - - -
11 Thursday, June 13, 2024
12 - - -

13 This is the Deposition of JENNIFER PERMUTH,
14 Ph.D., held at Shook, Hardy & Bacon, LLP, 100 North
15 Tampa Street, Suite 2900, Tampa, Florida, commencing
16 at 9:09 a.m. EDT, on the above date, before Susan D.
17 Wasilewski, Registered Professional Reporter,
18 Certified Realtime Reporter, Certified Manager of
19 Reporting Services, Certified Realtime Captioner,
20 and Florida Professional Reporter.

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<p style="text-align: right;">Page 2</p> <p>1 APPEARANCES IN TAMPA, FLORIDA</p> <p>2 Counsel for Plaintiffs:</p> <p>3 BEASLEY ALLEN</p> <p>4 BY: MARGARET THOMPSON, ESQUIRE</p> <p>5 P. LEIGH O'DELL, ESQUIRE</p> <p>6 leigh.odell@beasleyallen.com</p> <p>7 218 Commerce Street</p> <p>8 Montgomery, Alabama 36103</p> <p>9 Telephone: (800) 898-2034</p> <p>10</p> <p>11 Counsel for Defendants:</p> <p>12 SHOOK, HARDY & BACON</p> <p>13 BY: SCOTT JAMES, ESQUIRE</p> <p>14 sjames@shb.com</p> <p>15 JPMorgan Chase Tower</p> <p>16 600 Travis Street, Suite 3400</p> <p>17 Houston, Texas 77002</p> <p>18 Telephone: (713) 227-8008</p> <p>19</p> <p>20 APPEARANCES BY ZOOM</p> <p>21 Counsel for the Personal Care Products Council:</p> <p>22 REILLY McDEVITT HENRICH</p> <p>23 BY: BRANDY HARRIS, ESQUIRE</p> <p>24 bharris@rmh-law.com</p> <p>25 3 Executive Campus, Suite 310</p> <p>Cherry Hill, New Jersey 08002</p> <p>Telephone: (856) 317-7180</p> <p>ALSO PRESENT IN TAMPA, FLORIDA</p> <p>SUSAN WASILEWSKI, Court Reporter</p>	<p style="text-align: right;">Page 4</p> <p>1 E X H I B I T S</p> <p>2 (Attached to transcript)</p> <p>3 JENNIFER PERMUTH, Ph.D. DEPOSITION EXHIBITS PAGE</p> <p>4 Exhibit 9 Article: Association Between 58</p> <p>5 Breastfeeding and Ovarian Cancer</p> <p>6 Risk</p> <p>7 Ana Babic, PhD, et al.</p> <p>8</p> <p>9 Exhibit 10 Article: Adipocytes: Active 75</p> <p>10 facilitators in epithelial ovarian</p> <p>11 cancer progression?</p> <p>12 Lan Dai, et al.</p> <p>13 Exhibit 11 Article: Effects of risk factors for 79</p> <p>14 ovarian cancer in women with and</p> <p>15 without endometriosis</p> <p>16 Minh Tung Phung, M.P.H., Ph.D., et al.</p> <p>17</p> <p>18 Exhibit 12 Article: Opportunities and 97</p> <p>19 challenges in ovarian cancer</p> <p>20 research, a perspective from the</p> <p>21 11th Ovarian cancer action/HHMT</p> <p>22 Forum, Lake Como, March 2007</p> <p>23 Gynecologic Oncology 108 (2008)</p> <p>24 652-657</p> <p>25</p> <p>Exhibit 13 Article: Assessing Ovarian Cancer 100</p> <p>Risk When Considering Elective</p> <p>Oophorectomy at the Time of</p> <p>Hysterectomy</p> <p>Allison F. Vitonis, SM, et al.</p> <p>Exhibit 14 Article: African-Americans and 103</p> <p>Hispanics remain at lower risk of</p> <p>ovarian cancer than non-Hispanic</p> <p>Whites after considering non-genetic</p> <p>risk factors and oophorectomy rates</p> <p>Anna H. Wu, et al.</p> <p>Exhibit 15 Article: Modification of the 106</p> <p>Association Between Frequent Aspirin</p> <p>Using Individual-Level Data From Two</p> <p>Ovarian Cancer Consortia</p> <p>Lauren M. Hurwitz, PhD, MHS, et al.</p>
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<p style="text-align: right;">Page 10</p> <p>1 ---</p> <p>2 THE COURT REPORTER: Would you raise your</p> <p>3 right hand?</p> <p>4 Do you solemnly swear or affirm the</p> <p>5 testimony you're about to give will be the truth,</p> <p>6 the whole truth, and nothing but the truth?</p> <p>7 THE WITNESS: I do.</p> <p>8 THE COURT REPORTER: Thank you.</p> <p>9 JENNIFER PERMUTH, Ph.D., called as a witness</p> <p>10 by the Plaintiffs, having been first duly sworn,</p> <p>11 testified as follows:</p> <p>12 DIRECT EXAMINATION</p> <p>13 BY MS. THOMPSON:</p> <p>14 Q. Dr. Permuth, I'm Margaret Thompson and I'll</p> <p>15 be taking your deposition today on behalf of the</p> <p>16 plaintiffs. Is that your understanding?</p> <p>17 A. Yes, it is.</p> <p>18 Q. And you've been deposed before in this</p> <p>19 litigation, correct?</p> <p>20 A. In the MDL?</p> <p>21 Q. In the talcum powder litigation?</p> <p>22 A. In talcum, yes.</p> <p>23 Q. And you've testified at trial as well in</p> <p>24 the Mathey case, correct?</p> <p>25 A. I have.</p>	<p style="text-align: right;">Page 12</p> <p>1 BY MS. THOMPSON:</p> <p>2 Q. And what we call a reliance list or</p> <p>3 materials considered are part of your report,</p> <p>4 correct?</p> <p>5 A. Yes.</p> <p>6 Q. And the citations that you provide in the</p> <p>7 body of the report are part of that materials</p> <p>8 considered list, correct?</p> <p>9 A. Yes.</p> <p>10 Q. Am I correct to say that not everything in</p> <p>11 the 600 or so list of references is included in the</p> <p>12 body of the report; is that right?</p> <p>13 A. I would say between the body of the report</p> <p>14 and extra materials on the reliance lists, that</p> <p>15 encompasses the great corpus of what I've looked at.</p> <p>16 Q. Okay. Did you review any Johnson & Johnson</p> <p>17 documents in this case?</p> <p>18 A. What do you mean by Johnson & Johnson --</p> <p>19 Q. Internal company documents?</p> <p>20 A. That would not have been something I would</p> <p>21 have requested.</p> <p>22 Q. Okay. And you were not provided any</p> <p>23 internal company documents?</p> <p>24 A. No.</p> <p>25 Q. Did you review any plaintiff expert reports</p>
<p style="text-align: right;">Page 11</p> <p>1 Q. And you understand that the purpose is for</p> <p>2 me to be able to understand the opinions that you</p> <p>3 anticipate providing at trial, correct?</p> <p>4 A. Correct.</p> <p>5 Q. And also the basis for those opinions,</p> <p>6 correct?</p> <p>7 A. Yes.</p> <p>8 MS. THOMPSON: Susan, let's try to be a</p> <p>9 little efficient here and mark several exhibits</p> <p>10 off the bat.</p> <p>11 (Permuth Exhibit 1 was marked for identification.)</p> <p>12 BY MS. THOMPSON:</p> <p>13 Q. Exhibit Number 1 will be your expert report.</p> <p>14 MS. THOMPSON: Do you have a copy of that,</p> <p>15 Scott? And would you like one?</p> <p>16 MR. JAMES: Yes, thank you.</p> <p>17 (Permuth Exhibit 2 was marked for identification.)</p> <p>18 BY MS. THOMPSON:</p> <p>19 Q. Exhibit 2, if you want to have these in</p> <p>20 front of you, Dr. Permuth, is your CV. Is this your</p> <p>21 current CV?</p> <p>22 A. Yes.</p> <p>23 MS. THOMPSON: Are you okay with me just</p> <p>24 throwing those across the table, Scott?</p> <p>25 MR. JAMES: Yes, that's fine. Thank you.</p>	<p style="text-align: right;">Page 13</p> <p>1 in this case?</p> <p>2 A. I did.</p> <p>3 Q. And where would I find the list of those?</p> <p>4 A. That would be on my reliance materials.</p> <p>5 Q. On the supplemental, the additional</p> <p>6 reliance?</p> <p>7 MR. JAMES: I think there are some of the</p> <p>8 plaintiff expert reports in the 600 or so</p> <p>9 references, when Dr. Permuth gets into the</p> <p>10 section where she talks about the plaintiff</p> <p>11 expert reports. And also, Margaret, I need to</p> <p>12 give you-all a supplemental MCL this morning that</p> <p>13 has the May 28th updates from your eppies, and</p> <p>14 I'll get that printed right now.</p> <p>15 MS. THOMPSON: Okay.</p> <p>16 MR. JAMES: I do think there are references</p> <p>17 to, for example -- if she has the section in her</p> <p>18 report where she talks about some of the</p> <p>19 plaintiff expert reports, McTiernan and Harlow, I</p> <p>20 think those are cited in there.</p> <p>21 MS. THOMPSON: Let's check. I'm not sure</p> <p>22 about that.</p> <p>23 A. They are.</p> <p>24 Q. I know you do refer to them in your report,</p> <p>25 but I also don't know whether there are any</p>

<p style="text-align: right;">Page 14</p> <p>1 additional expert reports that you reviewed.</p> <p>2 A. Yeah. After my report was submitted, there</p> <p>3 were a few plaintiff witness reports that I looked</p> <p>4 at that are on the supplemental list which Mr. James</p> <p>5 will be printing.</p> <p>6 MR. JAMES: Yes.</p> <p>7 Q. Because I believe the supplemental list of</p> <p>8 materials considered that we received was related to</p> <p>9 the individual cases, the case-specific materials</p> <p>10 considered. Is that right?</p> <p>11 A. Yes.</p> <p>12 MS. THOMPSON: So I will mark that as</p> <p>13 Exhibit 3.</p> <p>14 (Permut Exhibit 3 was marked for identification.)</p> <p>15 (Permut Exhibit 4 was marked for identification.)</p> <p>16 BY MS. THOMPSON:</p> <p>17 Q. Exhibit 4 is notice of the deposition. Have</p> <p>18 you seen this document?</p> <p>19 A. Yes.</p> <p>20 Q. Did you bring anything with you today that</p> <p>21 was responsive to the materials that we requested</p> <p>22 that you provide?</p> <p>23 A. Did I personally bring anything?</p> <p>24 Q. Correct.</p> <p>25 A. I believe our team has supplied anything</p>	<p style="text-align: right;">Page 16</p> <p>1 A. The ones that I know I've been disclosed in</p> <p>2 are on this list.</p> <p>3 Q. Okay. You've not been disclosed in any</p> <p>4 cases in Philadelphia that you're aware of?</p> <p>5 A. I'm not aware of them.</p> <p>6 Q. And you submitted -- we'll mark Exhibit 6</p> <p>7 the invoices that you submitted.</p> <p>8 (Permut Exhibit 6 was marked for identification.)</p> <p>9 THE WITNESS: Thank you.</p> <p>10 BY MS. THOMPSON:</p> <p>11 Q. Is that an accurate record of the invoices</p> <p>12 that you've submitted to Shook Hardy?</p> <p>13 A. If this is what was supplied, then it should</p> <p>14 be accurate --</p> <p>15 MR. JAMES: Did you mark --</p> <p>16 A. -- and it dates back several years.</p> <p>17 MR. JAMES: Did you mark those, Margaret?</p> <p>18 MS. THOMPSON: Yes, I marked them together</p> <p>19 as Exhibit 6.</p> <p>20 MR. JAMES: Thank you.</p> <p>21 BY MS. THOMPSON:</p> <p>22 Q. And when were you first contacted by</p> <p>23 attorneys representing Johnson & Johnson as a</p> <p>24 potential expert witness in this case?</p> <p>25 A. I believe it was around 2017 and 2018.</p>
<p style="text-align: right;">Page 15</p> <p>1 that was pertinent.</p> <p>2 MS. THOMPSON: Scott, do you have anything</p> <p>3 other than what was provided to us, including the</p> <p>4 supplemental reliance and invoices and</p> <p>5 objections?</p> <p>6 MR. JAMES: No, but I am going to print off</p> <p>7 for you a new supplemental materials considered</p> <p>8 list in the next 30 minutes that's going to</p> <p>9 itemize that we did provide her the May 28th</p> <p>10 plaintiff expert reports, Saed 2024 and May 28th</p> <p>11 expert reports for three defense experts, and</p> <p>12 I'll have that to you within 15 minutes.</p> <p>13 MS. THOMPSON: Okay. But you missed the</p> <p>14 three-day deadline on that, right? Close enough.</p> <p>15 BY MS. THOMPSON:</p> <p>16 Q. We'll mark Exhibit 5 as your prior</p> <p>17 testimony.</p> <p>18 A. Thank you.</p> <p>19 (Permut Exhibit 5 was marked for identification.)</p> <p>20 BY MS. THOMPSON:</p> <p>21 Q. Is that up-to-date?</p> <p>22 A. It is.</p> <p>23 Q. Have you, to your knowledge, been disclosed</p> <p>24 in any other talcum powder cases other than the MDL</p> <p>25 and possibly New Jersey State court?</p>	<p style="text-align: right;">Page 17</p> <p>1 Q. And who contacted you?</p> <p>2 A. Counsel from another firm, Nutter -- I'm</p> <p>3 blanking on the name.</p> <p>4 MR. JAMES: Just as best as you can recall.</p> <p>5 A. Okay. So one firm, and then I spoke with</p> <p>6 counsel at Shook Hardy probably in 2018.</p> <p>7 Q. And what were you asked to do at that time?</p> <p>8 A. At that time I was asked about probably my</p> <p>9 opinions on the talc, you know, litigation.</p> <p>10 Q. And did you give those opinions to the</p> <p>11 lawyer that contacted you?</p> <p>12 A. Yes.</p> <p>13 Q. What was the name of the attorney that</p> <p>14 contacted you initially?</p> <p>15 A. Initially, it was Brian, I'm blanking on his</p> <p>16 last name, and then Dawn Curry was another attorney</p> <p>17 that I initially spoke with.</p> <p>18 Q. And the invoices that you provided today</p> <p>19 begin in 2021 and go through March 24th of 2024,</p> <p>20 correct?</p> <p>21 A. Uh-huh.</p> <p>22 Q. How much did you bill between 2017 and</p> <p>23 2018 -- and let me start over.</p> <p>24 How much did you bill between when you were</p> <p>25 first contacted in 2017 or '18 and the date of this</p>

<p style="text-align: right;">Page 18</p> <p>1 invoice on October -- in October of 2021?</p> <p>2 A. I'm not sure. I don't have those numbers.</p> <p>3 Q. Approximately?</p> <p>4 MR. JAMES: Just object to the form.</p> <p>5 A. I don't have a number to give you.</p> <p>6 Q. Can you testify as to how much money you</p> <p>7 were paid between when you were first contacted and</p> <p>8 October of 2021?</p> <p>9 MR. JAMES: Just object to the form, please.</p> <p>10 A. I would have to calculate that, and I</p> <p>11 believe you should have most invoices pertinent to</p> <p>12 the MDL. Right? That's what we're looking at here.</p> <p>13 Q. I think we're also entitled to the total</p> <p>14 amount that you've billed working on the talcum</p> <p>15 powder litigation for Johnson & Johnson.</p> <p>16 MS. THOMPSON: So if we -- we will request</p> <p>17 those.</p> <p>18 MR. JAMES: Okay. I think we have</p> <p>19 objections on file as to that. I know it's been</p> <p>20 discussed at prior depositions both sides. We</p> <p>21 believe that you're entitled to the invoices for</p> <p>22 the MDL and that's what we've produced, and we'll</p> <p>23 stand on our objections in further</p> <p>24 meet-and-confers between the parties on that</p> <p>25 topic.</p>	<p style="text-align: right;">Page 20</p> <p>1 Q. And what about the time since May 27th,</p> <p>2 2024?</p> <p>3 A. I have not added up those hours yet.</p> <p>4 Q. But there have been additional hours since</p> <p>5 May 24th?</p> <p>6 A. There have been in preparation for today.</p> <p>7 Q. And what did you do to prepare for your</p> <p>8 deposition today?</p> <p>9 A. Many things. I have been through my report</p> <p>10 multiple times. I have looked at medical records of</p> <p>11 the plaintiffs. I basically did things as if, you</p> <p>12 know, I was a genetic counselor and assessed</p> <p>13 histories of some of the plaintiffs. I've looked at</p> <p>14 lots of new literature. I've also reviewed</p> <p>15 transcripts.</p> <p>16 Q. And has that been done since May 27th?</p> <p>17 A. Yes.</p> <p>18 Q. Can you estimate how many hours you have</p> <p>19 spent since May 27th preparing for the deposition?</p> <p>20 A. I can't at this moment. I'm not sure.</p> <p>21 MR. JAMES: Margaret, can I interrupt you</p> <p>22 and give you our supplemental MCL? I promised</p> <p>23 you 15 minutes. Here you go.</p> <p>24 While you're looking, I did look at the</p> <p>25 report and there are references to plaintiff</p>
<p style="text-align: right;">Page 19</p> <p>1 BY MS. THOMPSON:</p> <p>2 Q. Is this the extent of the work that you've</p> <p>3 done on behalf of the MDL prior to October?</p> <p>4 A. Prior to October --</p> <p>5 Q. October 8th, 2021.</p> <p>6 A. So anything related to the MDL that I've</p> <p>7 billed for, my understanding is you have those</p> <p>8 invoices.</p> <p>9 Q. So the report that you submitted was based</p> <p>10 on a previous report, correct?</p> <p>11 MR. JAMES: Just object to the form.</p> <p>12 A. Yes. I've updated my report through time as</p> <p>13 new studies came out.</p> <p>14 Q. So none of the work that you did on the</p> <p>15 previous report that was updated here has been</p> <p>16 billed to the MDL, correct?</p> <p>17 MR. JAMES: Just object to the form, please.</p> <p>18 A. I don't recall. We're talking many years</p> <p>19 ago.</p> <p>20 Q. Okay. And you don't recall how many hours</p> <p>21 total that has been, whether it's MDL or any other</p> <p>22 case?</p> <p>23 MR. JAMES: Just objection; asked and</p> <p>24 answered.</p> <p>25 A. I'm not sure.</p>	<p style="text-align: right;">Page 21</p> <p>1 expert reports.</p> <p>2 MS. THOMPSON: We found them as well. Thank</p> <p>3 you.</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. Dr. Permuth, if you reviewed the amended</p> <p>6 expert reports, may I assume that you also reviewed</p> <p>7 the original expert reports on each of these</p> <p>8 experts?</p> <p>9 A. Yes.</p> <p>10 MS. THOMPSON: Let's go ahead and mark this</p> <p>11 as Exhibit 7. This is Supplemental Materials</p> <p>12 Considered for MDL.</p> <p>13 (Permuth Exhibit 7 was marked for identification.)</p> <p>14 THE WITNESS: Thank you.</p> <p>15 BY MS. THOMPSON:</p> <p>16 Q. As part of the materials that we received in</p> <p>17 the last few days, there is an e-mail exchange</p> <p>18 between you and Dr. Kathryn Terry, correct?</p> <p>19 A. Yes.</p> <p>20 MS. THOMPSON: Exhibit 8 will be that e-mail</p> <p>21 exchange.</p> <p>22 (Permuth Exhibit 8 was marked for identification.)</p> <p>23 BY MS. THOMPSON:</p> <p>24 Q. And this is dated October 5th of 2021,</p> <p>25 correct?</p>

<p style="text-align: right;">Page 22</p> <p>1 A. Yes.</p> <p>2 Q. And that was after you were -- after you had</p> <p>3 begun work for Johnson & Johnson as an expert,</p> <p>4 correct?</p> <p>5 A. Yes.</p> <p>6 Q. Can you tell me what the substance of the</p> <p>7 e-mail exchange and phone call was at that time with</p> <p>8 Dr. Terry?</p> <p>9 A. Yes, and, you know, it is several years</p> <p>10 later, but as I think about it, it related to some</p> <p>11 of the data she reported on in her pooled analysis</p> <p>12 in comparison to a paper that came out several years</p> <p>13 later by her mentor, Dr. Cramer.</p> <p>14 Q. And what were those questions you had for</p> <p>15 Dr. Terry?</p> <p>16 A. They related to the sample size of clear</p> <p>17 cell ovarian cancer cases, and I do comment on this</p> <p>18 in my report.</p> <p>19 Q. And only clear cell, you did not discuss any</p> <p>20 of Dr. Terry's other findings?</p> <p>21 A. Yeah. There was a discrepancy with clear</p> <p>22 cell cases.</p> <p>23 Q. Do you respect Dr. Terry as a researcher and</p> <p>24 scientist?</p> <p>25 A. I do.</p>	<p style="text-align: right;">Page 24</p> <p>1 deleted?</p> <p>2 A. Absolutely.</p> <p>3 Q. But the words are all yours?</p> <p>4 A. Yes.</p> <p>5 Q. Do you consider your report unbiased?</p> <p>6 A. Yes.</p> <p>7 Q. On Page 4 of your report you discuss your</p> <p>8 career as a genetic counselor.</p> <p>9 A. Yes.</p> <p>10 Q. Middle of the first paragraph, stating that:</p> <p>11 I personally counseled and educated hundreds of</p> <p>12 women newly diagnosed with ovarian cancer and</p> <p>13 related cancers, primarily peritoneal and fallopian</p> <p>14 tube cancers, about possible causes of their</p> <p>15 disease, along with implications for their family</p> <p>16 members.</p> <p>17 Did you discuss any possible causes of their</p> <p>18 disease other than relating to genetic or family</p> <p>19 history?</p> <p>20 A. Yes.</p> <p>21 Q. Do you believe there are other causes of</p> <p>22 ovarian cancer besides genetic and family history?</p> <p>23 A. Yes, and I discuss them in my report.</p> <p>24 Q. So do you consider a risk factor with</p> <p>25 adequate evidence as a cause?</p>
<p style="text-align: right;">Page 23</p> <p>1 Q. But you disagree with her conclusions from</p> <p>2 her paper?</p> <p>3 A. I disagree with the interpretation and the</p> <p>4 fundamental science.</p> <p>5 Q. Would you say her paper is flawed?</p> <p>6 A. Some of the interpretation.</p> <p>7 Q. Would you say her paper is unreliable?</p> <p>8 MR. JAMES: Objection to the form, please.</p> <p>9 A. I would more say some of the data in the</p> <p>10 paper is unreliable.</p> <p>11 Q. Okay. Let's look at your expert report.</p> <p>12 Did you write the report yourself?</p> <p>13 A. I did.</p> <p>14 Q. Every word?</p> <p>15 A. Yes.</p> <p>16 Q. And tell me the process that you used as you</p> <p>17 were writing your report?</p> <p>18 A. Well, a lot of it began with a PubMed search</p> <p>19 identifying key terms pertinent to this litigation,</p> <p>20 such as talcum powder, ovarian cancer, epidemiology,</p> <p>21 case-control, cohort, and I systematically reviewed</p> <p>22 the literature, and then, as I reviewed it, I would</p> <p>23 be writing about the findings of various studies.</p> <p>24 Q. And was the report, would you call it a live</p> <p>25 document, you used word processing and added and</p>	<p style="text-align: right;">Page 25</p> <p>1 MR. JAMES: Just object to the form, please.</p> <p>2 A. I think risk factors do contribute to the</p> <p>3 cause and of risk factors that are concerning,</p> <p>4 genetic and familial factors pose some of the</p> <p>5 greatest risks.</p> <p>6 Q. So let me hone in on that opinion a little</p> <p>7 bit. So would you call those risk factors that</p> <p>8 contribute to the cause contributing causes?</p> <p>9 MR. JAMES: Just objection to that form,</p> <p>10 please.</p> <p>11 A. I think they can contribute to causality,</p> <p>12 yes.</p> <p>13 Q. And what are the risk factors that you</p> <p>14 believe contribute to cause besides genetic and</p> <p>15 family history?</p> <p>16 MR. JAMES: Objection to the form.</p> <p>17 A. I think there is a host of reproductive</p> <p>18 factors that I discuss throughout the report,</p> <p>19 including, like, if someone is -- if a woman is</p> <p>20 nulliparous, so never had children, I think</p> <p>21 reproductive history and lifetime ovulatory cycles</p> <p>22 play a role, the increased length of those cycles</p> <p>23 over a woman's lifetime the greater the risk of</p> <p>24 ovarian cancer.</p> <p>25 Do you want me to keep going?</p>

<p style="text-align: right;">Page 26</p> <p>1 Q. Yes.</p> <p>2 A. And I do have a Table 6 that goes over all</p> <p>3 of these and I've broken it down in terms of</p> <p>4 established and then --</p> <p>5 Q. You have. That's in the context of --</p> <p>6 A. That's in Exhibit 1.</p> <p>7 Q. That's in the context of risk factors.</p> <p>8 A. Yes.</p> <p>9 Q. I'm asking which ones do you -- is it your</p> <p>10 opinion contribute to cause. And we have family</p> <p>11 history and genetics, nulliparity, and lifetime</p> <p>12 ovulatory cycles. What others?</p> <p>13 MR. JAMES: Just objection to the form,</p> <p>14 please.</p> <p>15 MS. THOMPSON: What's your objection, Scott,</p> <p>16 so I can correct it, if I can?</p> <p>17 MR. JAMES: I think that she's articulated</p> <p>18 some additional terminology that you didn't just</p> <p>19 restate, but beyond that, my objection is to the</p> <p>20 form.</p> <p>21 Q. I think I used your exact words. Contribute</p> <p>22 to cause, right?</p> <p>23 MR. JAMES: My objection was to your</p> <p>24 listing, but next question.</p> <p>25 MS. THOMPSON: All right.</p>	<p style="text-align: right;">Page 28</p> <p>1 objection to the form and the statement, I</p> <p>2 suppose.</p> <p>3 Q. Is ovarian cancer development equivalent to</p> <p>4 carcinogenesis?</p> <p>5 MR. JAMES: Objection to the form.</p> <p>6 A. It's about a process, a multistep process,</p> <p>7 and the factors that I've been talking about do</p> <p>8 contribute to that malignant transformation, that</p> <p>9 process of cancer development.</p> <p>10 Q. And that is the process of carcinogenesis,</p> <p>11 correct?</p> <p>12 MR. JAMES: Just objection to the form.</p> <p>13 A. One could state it that way.</p> <p>14 Q. Any others?</p> <p>15 A. I talk a little bit about, I don't know,</p> <p>16 obesity is one factor but, you know, studies really</p> <p>17 looking at adolescent obesity are more compelling</p> <p>18 than later in life.</p> <p>19 Q. Is it your opinion that obesity can</p> <p>20 contribute to the cause of ovarian cancer?</p> <p>21 MR. JAMES: Objection to the form, please.</p> <p>22 A. Mechanistically we know that obesity</p> <p>23 and adiposity in tissues can contribute to</p> <p>24 carcinogenesis of the ovaries and other cancer</p> <p>25 types. And if I may, you know, I'd love -- if we're</p>
<p style="text-align: right;">Page 27</p> <p>1 A. Unopposed estrogen therapy is one that I've</p> <p>2 listed as an established risk factor.</p> <p>3 Q. Is that premenopausal as well as</p> <p>4 postmenopausal estrogen therapy?</p> <p>5 A. I've seen studies in both areas that support</p> <p>6 unopposed estrogen as a risk factor.</p> <p>7 Q. And unopposed estrogen, in your opinion,</p> <p>8 contributes to cause?</p> <p>9 A. It may contribute to ovarian cancer</p> <p>10 development.</p> <p>11 Q. Contributes to cause?</p> <p>12 MR. JAMES: Just objection to the form;</p> <p>13 asked and answered.</p> <p>14 A. Yeah, I believe I've articulated how I feel</p> <p>15 about that.</p> <p>16 Q. Well, you can answer again. Does unopposed</p> <p>17 estrogen contribute to cause?</p> <p>18 MR. JAMES: Objection; asked and answered,</p> <p>19 and form.</p> <p>20 A. Yeah, I believe it contributes to ovarian</p> <p>21 cancer development.</p> <p>22 Q. Okay. So that's a little bit different from</p> <p>23 the others that you've mentioned, contributes to</p> <p>24 ovarian cancer development?</p> <p>25 MR. JAMES: Just objection to the --</p>	<p style="text-align: right;">Page 29</p> <p>1 talking risk factors, I could go to my -- I'd like</p> <p>2 to go to my Table 6 and --</p> <p>3 Q. Sure.</p> <p>4 A. -- could do that, if it's in the back. I</p> <p>5 don't know if it's printed out.</p> <p>6 MR. JAMES: Margaret, is it okay if I share</p> <p>7 a copy of her report in a binder so it's easier</p> <p>8 for her to flip through?</p> <p>9 MS. THOMPSON: That's fine.</p> <p>10 MS. O'DELL: Is there anything else in the</p> <p>11 notebook?</p> <p>12 MR. JAMES: Just the attachments that she's</p> <p>13 marked.</p> <p>14 A. So we talked about family history, we've</p> <p>15 talked about obesity, we talked about estrogen and</p> <p>16 hormone replacement therapy. Endometriosis is</p> <p>17 another risk factor, especially for the endometrioid</p> <p>18 and clear cell subtypes of ovarian cancer.</p> <p>19 Q. Okay. And would you consider endometriosis</p> <p>20 a contributing cause of ovarian cancer?</p> <p>21 A. Contributes to ovarian cancer development.</p> <p>22 Q. And you used development different from</p> <p>23 cause. Why is that?</p> <p>24 MR. JAMES: Objection to form.</p> <p>25 A. In epidemiology, there are -- you know, when</p>

<p style="text-align: right;">Page 30</p> <p>1 we say the word "cause," and we'll talk about that</p> <p>2 today, I'm sure, there is a lot of factors that we</p> <p>3 think about in terms of causality, and when I'm</p> <p>4 talking about these established or probable risk</p> <p>5 factors, I do believe they are on the pathway to</p> <p>6 causation.</p> <p>7 Q. And do you -- you mentioned that you have</p> <p>8 mechanistic evidence of obesity in ovarian cancer,</p> <p>9 correct?</p> <p>10 A. There is mechanistic data to support a link</p> <p>11 between obesity and ovarian cancer risks.</p> <p>12 Q. And you have mechanistic data to support</p> <p>13 endometriosis in the development of ovarian cancer?</p> <p>14 A. I don't know how much I cite any of that but</p> <p>15 endometriosis definitely has a tendency to develop</p> <p>16 into endometrioid or clear cell ovarian cancer.</p> <p>17 Q. But what is the mechanism, or is the</p> <p>18 mechanism established?</p> <p>19 A. Well, mechanism could relate -- for</p> <p>20 endometriosis could relate to genetic factors, it</p> <p>21 could relate to hormonal factors, to name a few.</p> <p>22 Q. Inflammatory factors?</p> <p>23 MR. JAMES: Objection to form.</p> <p>24 Q. Can the development of ovarian cancer from</p> <p>25 endometriosis relate to inflammatory factors?</p>	<p style="text-align: right;">Page 32</p> <p>1 nonsteroidal anti-inflammatory drugs would play a</p> <p>2 profound role consistently in increasing ovarian</p> <p>3 cancer risk if they were used. We see that the data</p> <p>4 on that is quite inconclusive.</p> <p>5 Q. I'm looking for an article or a study that</p> <p>6 states that inflammation does not play a role in</p> <p>7 carcinogenesis of ovarian cancer.</p> <p>8 MR. JAMES: Just object to form.</p> <p>9 Q. Can you name one?</p> <p>10 A. I'd have to look through my report. I've</p> <p>11 cited several studies that would not support the</p> <p>12 hypothesis, and we can go through those. I just</p> <p>13 have to find them.</p> <p>14 Q. Okay. Let me ask you the question again.</p> <p>15 Listen to my question. I'm looking for an article</p> <p>16 or a study that states that inflammation does not</p> <p>17 play a role in the development of ovarian cancer.</p> <p>18 MR. JAMES: Just objection to the form.</p> <p>19 A. I think, you know, one of the words you</p> <p>20 brought up earlier was unbiased. I think a lot of</p> <p>21 literature that I've cited takes a really unbiased</p> <p>22 look at the science and would probably say -- not</p> <p>23 come out and say inflammation does not cause ovarian</p> <p>24 cancer. The conclusions will likely state it's</p> <p>25 unlikely to cause ovarian cancer.</p>
<p style="text-align: right;">Page 31</p> <p>1 MR. JAMES: Objection to form.</p> <p>2 A. That wouldn't be one of the main things I</p> <p>3 would think about.</p> <p>4 Q. And if there is a great deal of literature</p> <p>5 that does state that, you would disagree with it?</p> <p>6 MR. JAMES: Objection to form.</p> <p>7 A. I think in the big scheme of things,</p> <p>8 inflammation is not a main pathway by which ovarian</p> <p>9 cancer develops. I think there are other mechanisms</p> <p>10 that are much more plausible.</p> <p>11 Q. You would agree that others have a different</p> <p>12 opinion on that, correct?</p> <p>13 MR. JAMES: Objection to form, please.</p> <p>14 A. Others may have different opinions. I'm</p> <p>15 relying on the science and what I've seen and</p> <p>16 nothing being compelling to support inflammation as</p> <p>17 a cause of ovarian cancer, using the terms that</p> <p>18 you've been providing.</p> <p>19 Q. What literature are you relying on for your</p> <p>20 opinion that inflammation does not play a role in</p> <p>21 ovarian carcinogenesis?</p> <p>22 A. I think we can look at several lines of</p> <p>23 data. One of them that I think of a lot is, you</p> <p>24 know, if inflammation really was a main contributor</p> <p>25 to ovarian carcinogenesis, we would expect that</p>	<p style="text-align: right;">Page 33</p> <p>1 Q. Can you show me that article or literature</p> <p>2 that says it's unlikely to cause ovarian cancer?</p> <p>3 A. I'd be happy --</p> <p>4 MR. JAMES: Just objection to the form.</p> <p>5 A. Yeah, I can find some studies, and I don't</p> <p>6 know if we'd have the articles to support them, but</p> <p>7 I can go to where I discuss inflammation and find</p> <p>8 some studies that would suggest that inflammation is</p> <p>9 not a key mechanism by which ovarian cancer</p> <p>10 develops.</p> <p>11 Q. Okay. Go ahead and find those for me.</p> <p>12 A. These days it's easier with a word search</p> <p>13 function but I'll do my best.</p> <p>14 Q. Did you research inflammation does --</p> <p>15 MR. JAMES: Hold on. She's looking through</p> <p>16 her report as you asked her to do.</p> <p>17 MS. THOMPSON: Okay. I'll wait.</p> <p>18 A. It's going to take me a little time since I</p> <p>19 don't have a word search function.</p> <p>20 MR. JAMES: Just take your time. She's</p> <p>21 asked q very vague question.</p> <p>22 MS. THOMPSON: Let's go off the record.</p> <p>23 MR. JAMES: Excuse me?</p> <p>24 MS. THOMPSON: Let's go off the record.</p> <p>25 MR. JAMES: Why are we going off the record?</p>

<p style="text-align: right;">Page 34</p> <p>1 MS. THOMPSON: If it's going to take her a 2 long time to search. 3 MR. JAMES: She's responding to your very 4 vague question, so she's going to look through 5 her report on the record and that's what we're 6 going to do. 7 MS. THOMPSON: I object to my question being 8 vague. It was very specific. 9 MR. JAMES: You're asking her to find a 10 study -- 11 MS. THOMPSON: Any study. 12 MR. JAMES: -- that says something 13 specifically that you say. 14 MS. THOMPSON: That supports her opinion 15 that she just provided. 16 MR. JAMES: Got it. 17 A. Okay. So, as an example, and there's going 18 to be numerous, depends how long you want me to 19 take, but I -- let me get the article that I'm 20 citing and then I can give more information. 21 So I'm citing Reference 653. It's an 22 article by Malmberg and colleagues, and it is a 23 study that potentially showed no correlation between 24 serous carcinoma and signs of chronic tubal injury 25 or inflammation, so this would be one that basically</p>	<p style="text-align: right;">Page 36</p> <p>1 state that inflammation does not play a role in the 2 development of ovarian cancer, does it? 3 MR. JAMES: Just objection to the form. She 4 doesn't have the study. 5 A. I don't have the paper in front of me but 6 they -- 7 Q. I'm asking do you know if that paper states 8 that inflammation does not play a role in the 9 development of ovarian cancer? 10 A. I don't have the paper in front of me. 11 Q. So you don't know. Is there a study that 12 you know of that states that inflammation does not 13 play a role in ovarian cancer? 14 MR. JAMES: Just objection to the form; 15 asked and answered. And you are asking if she 16 knows of a paper that has those exact words, is 17 that the question? 18 MS. THOMPSON: No, I'm not asking for those 19 exact words. 20 Q. I'm asking for something -- if you have 21 something similar, that will do just fine. 22 MR. JAMES: Objection; asked and answered, 23 and already provided. 24 Q. All right. Let's move on then. 25 Did you search "inflammation causes ovarian</p>
<p style="text-align: right;">Page 35</p> <p>1 would showcase how inflammation is not a pathway or 2 mechanism by which ovarian cancer would be -- would 3 be developing. 4 Q. Does the Malmberg study state that 5 inflammation does not play a role in the 6 pathogenesis of ovarian cancer? 7 MR. JAMES: Just objection to form. She 8 doesn't have the paper in front of her. 9 A. I believe the conclusions would suggest that 10 but I don't have the paper in front of me, but the 11 data at hand would go against the inflammation 12 hypothesis. 13 Q. Okay. 14 A. Secondly, Poole and colleagues, she has 15 published on the Nurses' Health Study and was part 16 of that group a lot, Reference 654. They measure 17 various inflammatory factors or markers in the blood 18 and their relationship to ovarian cancer 19 development. They basically -- let's see what they 20 did. 21 They basically try to show that markers of 22 inflammation contribute to ovarian cancer but there 23 was nothing convincing on that to support that 24 mechanism. 25 Q. So not convincing but that study doesn't</p>	<p style="text-align: right;">Page 37</p> <p>1 cancer" when you did your searches? 2 MR. JAMES: Just objection to form. 3 A. I wouldn't have put "inflammation causes 4 ovarian cancer" as my search terms; inflammation, 5 epidemiology, ovarian cancer. 6 Q. Did you search "inflammation and ovarian 7 cancer"? 8 A. At some point I would have, yes, and I've 9 commented on inflammation a bunch of times 10 throughout my report. 11 Q. And if you did, I believe you would have 12 seen several hundred articles regarding inflammation 13 and ovarian cancer. Would you not believe me on 14 that? 15 MR. JAMES: Objection to the form of that 16 question, if there was a question. 17 A. I don't know if it's belief. I don't know 18 how many articles have been on that but sitting here 19 today, there is nothing compelling that I have come 20 across that showcases how inflammation causes 21 ovarian cancer, nothing -- 22 Q. Give -- sorry. 23 A. Nothing to support that. 24 Q. Give me your definition of compelling. 25 A. Compelling would be -- I don't know, I would</p>

<p style="text-align: right;">Page 38</p> <p>1 consider some of the Hill criteria, like is this</p> <p>2 biologically plausible here, is this coherent with</p> <p>3 what we know about ovarian carcinogenesis, does it</p> <p>4 make sense that if we could have something like</p> <p>5 NSAIDs, which are supposed to be anti-inflammatory</p> <p>6 in nature, and if we use those, would we see a lower</p> <p>7 ovarian cancer risk.</p> <p>8 We're not seeing that consistently, so we're</p> <p>9 not seeing plausibility that would suggest something</p> <p>10 compelling to me.</p> <p>11 Are there any great animal mouse models or</p> <p>12 in vitro studies that suggest inflammation causes</p> <p>13 ovarian cancer? No. Compelling would be multiple</p> <p>14 types of data coming together showcasing support or,</p> <p>15 you know, a refute of a hypothesis, and I have not</p> <p>16 seen anything strong or compelling to support</p> <p>17 inflammation as a cause of ovarian cancer.</p> <p>18 Q. What have you seen that refutes inflammation</p> <p>19 as a cause of ovarian cancer besides NSAID data?</p> <p>20 MR. JAMES: Well, besides objection; asked</p> <p>21 and answered.</p> <p>22 A. If we think about other conditions or other</p> <p>23 factors, I mentioned pelvic inflammatory disease.</p> <p>24 Most of what we see there relates to more benign</p> <p>25 ovarian tumors rather than malignant.</p>	<p style="text-align: right;">Page 40</p> <p>1 the studies?</p> <p>2 MR. JAMES: Objection; form.</p> <p>3 A. I would say it's a Dr. Permuth</p> <p>4 interpretation of the science as well as others in</p> <p>5 the scientific community, which I comment on in the</p> <p>6 report.</p> <p>7 Q. You do, but you're not saying that any of</p> <p>8 these in vitro and animal studies that you say</p> <p>9 support refuting inflammation as playing a role,</p> <p>10 none of those papers themselves said that their</p> <p>11 paper was flawed, correct?</p> <p>12 MR. JAMES: Objection; form.</p> <p>13 A. Said that whose paper is flawed? I'm not</p> <p>14 following the question.</p> <p>15 Q. The authors, did any of the authors say</p> <p>16 their paper is flawed and, therefore, their study</p> <p>17 showing inflammation doesn't support inflammation?</p> <p>18 MR. JAMES: Just objection to form, please.</p> <p>19 A. I'm not following the question.</p> <p>20 Q. Okay. We'll move on.</p> <p>21 On Page 5, the last sentence reads, and this</p> <p>22 is underlined, it's the only portion of your report</p> <p>23 that's underlined, so I am going to ask you if I can</p> <p>24 assume that this is your primary opinion for the</p> <p>25 report, and it reads: Based on the totality of</p>
<p style="text-align: right;">Page 39</p> <p>1 Q. Have you seen animal studies that refute</p> <p>2 inflammation --</p> <p>3 MR. JAMES: Objection to form.</p> <p>4 Q. -- as playing a role in ovarian cancer?</p> <p>5 MR. JAMES: Sorry. Objection to form.</p> <p>6 A. I would have to look through my report to</p> <p>7 comment better on that but nothing --</p> <p>8 Q. Nothing --</p> <p>9 A. -- has certainly supported information.</p> <p>10 Q. That wasn't my question, though. Have you</p> <p>11 seen anything that refutes inflammation playing a</p> <p>12 role in ovarian cancer?</p> <p>13 MR. JAMES: Objection; asked and answered,</p> <p>14 and objection to form.</p> <p>15 A. I would say I have identified articles that</p> <p>16 would support refuting the hypothesis.</p> <p>17 Q. I'll go with that. Have you seen in vitro</p> <p>18 studies that refute inflammation playing a role in</p> <p>19 ovarian carcinogenesis?</p> <p>20 A. I would again say that I have seen studies</p> <p>21 that would support inflammation not playing a role</p> <p>22 in ovarian carcinogenesis, and those that do try to</p> <p>23 showcase inflammation possibly plays a role in</p> <p>24 ovarian carcinogenesis are methodologically flawed.</p> <p>25 Q. So that's the Dr. Permuth interpretation of</p>	<p style="text-align: right;">Page 41</p> <p>1 available evidence, it is my opinion to a reasonable</p> <p>2 degree of scientific certainty that the plaintiffs'</p> <p>3 experts' hypotheses as to causation are flawed.</p> <p>4 Reliable and robust scientific evidence is lacking</p> <p>5 to support the contention that talc causes ovarian</p> <p>6 cancer.</p> <p>7 Is that the umbrella opinion for your</p> <p>8 report?</p> <p>9 A. That is my opinion.</p> <p>10 Q. And you understood my question?</p> <p>11 A. Yes.</p> <p>12 Q. And I believe I've asked you about -- maybe</p> <p>13 I haven't.</p> <p>14 What does robust mean to you?</p> <p>15 A. That one can trust the validity of the</p> <p>16 science, how true the findings are to reality.</p> <p>17 Q. Okay. And when you say lacking, are you</p> <p>18 saying there is none or you're --</p> <p>19 MR. JAMES: Sorry. Go ahead.</p> <p>20 Q. No, go. I can stop there.</p> <p>21 MR. JAMES: I'll just do objection to form.</p> <p>22 Thank you.</p> <p>23 A. I don't feel there is data to support talc</p> <p>24 causing ovarian cancer.</p> <p>25 Q. Okay. None?</p>

<p style="text-align: right;">Page 42</p> <p>1 MR. JAMES: Same objection.</p> <p>2 A. No. I feel strongly nothing is convincing.</p> <p>3 Q. Okay. Did you look at any evidence that</p> <p>4 talcum powder contains asbestos?</p> <p>5 A. What I looked at was the epi literature. So</p> <p>6 are you talking about company documents or what are</p> <p>7 you referring to?</p> <p>8 Q. Literature, company documents, FDA. Did you</p> <p>9 review any documents that addressed whether or not</p> <p>10 talcum powder contains asbestos?</p> <p>11 A. What I looked at is the bulk of the epi</p> <p>12 literature, which considered talc as a substance or</p> <p>13 as a whole.</p> <p>14 Q. And would your opinions change in any way if</p> <p>15 you're convincingly shown that talcum powder</p> <p>16 contains asbestos?</p> <p>17 MR. JAMES: Just objection to the form,</p> <p>18 please.</p> <p>19 A. Again, I'd be looking at study design and</p> <p>20 findings and considering that agent, whatever the</p> <p>21 woman used as a whole.</p> <p>22 Q. So it doesn't matter to your opinions if</p> <p>23 talcum powder contains asbestos?</p> <p>24 MR. JAMES: Just objection to the form.</p> <p>25 A. It's not that it doesn't matter. It would</p>	<p style="text-align: right;">Page 44</p> <p>1 Q. And I agree that a genetic counselor would</p> <p>2 go out to a third-degree relative. Do you believe a</p> <p>3 third-degree relative with breast, ovarian or colon</p> <p>4 cancer increases a woman's risk for ovarian cancer?</p> <p>5 A. It could.</p> <p>6 Q. Does it?</p> <p>7 MR. JAMES: Objection; asked and answered.</p> <p>8 A. I think it can. Is it as strong as someone</p> <p>9 closer in degree of relationship? Possibly not.</p> <p>10 However, one must understand and look at the</p> <p>11 composition of the family. If this is something</p> <p>12 that is paternal in origin, we wouldn't expect one's</p> <p>13 father to have ovarian cancer. Right? So we'd have</p> <p>14 to look further in the family tree, and if there is</p> <p>15 a family full of men and all we have is that great</p> <p>16 aunt with ovarian cancer, then we need to consider</p> <p>17 that.</p> <p>18 Q. Can you say to a reasonable degree of</p> <p>19 medical certainty that a third-degree relative</p> <p>20 increases a woman's risk of ovarian cancer?</p> <p>21 MR. JAMES: Just objection to form.</p> <p>22 A. I would say we would need to look at the</p> <p>23 family history as a whole. In general, the more</p> <p>24 distant a relative, it's not as high of a risk.</p> <p>25 Q. I'm going to ask my question again.</p>
<p style="text-align: right;">Page 43</p> <p>1 be that I would consider the substance as a whole.</p> <p>2 Q. It would not modify your opinions, is that</p> <p>3 what you're saying?</p> <p>4 MR. JAMES: Just objection to form.</p> <p>5 A. My opinions would not be changing based on</p> <p>6 the bulk of data that I've looked at over the years.</p> <p>7 Q. Okay. On.</p> <p>8 Page 9, Family History and Genetic</p> <p>9 Predisposition, you state that: The strongest risk</p> <p>10 factor for ovarian cancer is having a family history</p> <p>11 of or genetic predisposition to ovarian cancer or</p> <p>12 breast cancer.</p> <p>13 What do you consider a family history that</p> <p>14 would be significant for an increased risk of</p> <p>15 ovarian cancer?</p> <p>16 A. So typically, as a genetic counselor, we</p> <p>17 would take pedigrees or family histories where we</p> <p>18 draw them out, both sides of the family, maternal</p> <p>19 and paternal. We'd consider first-degree relatives,</p> <p>20 which include parents, siblings, children;</p> <p>21 second-degree relatives, which constitutes, aunts,</p> <p>22 uncles, nieces; third-degree relatives, which</p> <p>23 includes cousins, and sometimes we even go further.</p> <p>24 The closer the degree in relationship, the</p> <p>25 more the concern.</p>	<p style="text-align: right;">Page 45</p> <p>1 Can you say that a third-degree relative</p> <p>2 increases the risk of ovarian cancer for that woman,</p> <p>3 to a reasonable degree of medical certainty?</p> <p>4 MR. JAMES: Sorry. Just objection to form</p> <p>5 and objection; asked and answered.</p> <p>6 BY MS. THOMPSON:</p> <p>7 Q. Let me get that. I think you answered it's</p> <p>8 not as strong. What does not as strong mean?</p> <p>9 A. There is data to suggest the closer the</p> <p>10 relationship, the higher the risk. So if I've got a</p> <p>11 first-degree relative with ovarian cancer, my risk</p> <p>12 is likely higher than someone who has a</p> <p>13 second-degree relative or higher than someone who</p> <p>14 has a third-degree relative. However, as I tried to</p> <p>15 give you context, it matters what the whole family</p> <p>16 tree looks like and the composition of it,</p> <p>17 especially if something is paternal in origin.</p> <p>18 So it depends. If I have a BRCA positive</p> <p>19 family and I've got a third-degree relative with</p> <p>20 ovarian cancer, I'm concerned about it. So it</p> <p>21 depends. I wish I could give you a straightforward</p> <p>22 answer, but as a genetics professional, I have to</p> <p>23 consider the whole picture.</p> <p>24 Q. I appreciate that you consider the whole</p> <p>25 picture. Now, the article that you cited, in 1994,</p>

<p style="text-align: right;">Page 46</p> <p>1 did not have any genetic testing in it, correct?</p> <p>2 A. I'd have to pull the article and look at it.</p> <p>3 Q. 1994 might have genetic testing?</p> <p>4 MR. JAMES: Objection to form.</p> <p>5 Q. On the study group?</p> <p>6 A. I'd have to look at the article.</p> <p>7 Q. When did genetic testing -- when did BRCA</p> <p>8 testing come into use?</p> <p>9 A. I'm trying to think of Mary-Claire King</p> <p>10 found or came up with the gene. You know, a lot of</p> <p>11 this -- there were family segregation studies before</p> <p>12 that time, when BRCA1 and 2 were cloned, so I'd have</p> <p>13 to look. Yes, it's very likely there wouldn't be</p> <p>14 BRCA1 or 2 results from 1994.</p> <p>15 Q. Okay. Thank you. I thought you should --</p> <p>16 would know that as a genetic counselor.</p> <p>17 MR. JAMES: Objection to that weird</p> <p>18 editorial, and unprofessional editorial.</p> <p>19 MS. O'DELL: It was not unprofessional.</p> <p>20 MS. THOMPSON: It wasn't meant --</p> <p>21 MR. JAMES: Disagree.</p> <p>22 BY MS. THOMPSON:</p> <p>23 Q. It's wasn't meant to be unprofessional and I</p> <p>24 hope you didn't take it that way.</p> <p>25 A. I did, but that's okay. We'll move forward.</p>	<p style="text-align: right;">Page 48</p> <p>1 Q. For ovarian cancer, yes. That's what we're</p> <p>2 talking about.</p> <p>3 A. Yes.</p> <p>4 Q. Okay. And the Wynn paper that you did cite</p> <p>5 from 1994, that you agree was prior to the</p> <p>6 introduction of genetic testing, the Nguyen paper</p> <p>7 states that 7 percent of ovarian cancer patients</p> <p>8 have a positive family history, and 3 to 9 percent</p> <p>9 of those may eventually manifest certain hereditary</p> <p>10 cancer syndromes.</p> <p>11 Do you agree with that statement from the</p> <p>12 Nguyen paper?</p> <p>13 MR. JAMES: Objection to the form. Are you</p> <p>14 reading her report or reading the paper?</p> <p>15 Q. I'm reading from the paper.</p> <p>16 A. So I don't have the paper in front of me.</p> <p>17 Q. Well, you only cited two studies for your</p> <p>18 opinion that family history and genetic risk were</p> <p>19 the most important risk factor, two studies. Do you</p> <p>20 not know what those studies stated?</p> <p>21 MR. JAMES: Objection to the form.</p> <p>22 Objection to the tone. Do you have a copy of the</p> <p>23 study to provide her?</p> <p>24 BY MR. JAMES:</p> <p>25 Q. Do you agree with the statement:</p>
<p style="text-align: right;">Page 47</p> <p>1 Q. And you weren't an epidemiologist in 1994,</p> <p>2 correct?</p> <p>3 A. I was going to be -- I'm trying to think.</p> <p>4 '94? At that point I was not officially a student</p> <p>5 in that field.</p> <p>6 Q. And in the Jones article that you cite from</p> <p>7 2017, genetic testing would have been in place and</p> <p>8 studied in that article?</p> <p>9 A. Yes.</p> <p>10 Q. Do you agree?</p> <p>11 A. Yes.</p> <p>12 Q. And the Jones article states: The majority</p> <p>13 of the family ovarian cancer risk is due to</p> <p>14 inherited genetic factors.</p> <p>15 A. May I get what page you're on?</p> <p>16 Q. I don't have that with me.</p> <p>17 MS. O'DELL: She asked what page.</p> <p>18 Q. Oh, of your report? I'm on Page 9. BRCA is</p> <p>19 the stronger predictor of inherited risk, would you</p> <p>20 disagree with that statement?</p> <p>21 MR. JAMES: Objection to form.</p> <p>22 A. That BRCA --</p> <p>23 Q. Is the strongest predictor of inherited</p> <p>24 risk?</p> <p>25 A. For ovarian cancer?</p>	<p style="text-align: right;">Page 49</p> <p>1 Approximately 7 percent of ovarian cancer patients</p> <p>2 have a positive family history and 3 to 9 percent of</p> <p>3 those may eventually manifest certain hereditary</p> <p>4 cancer syndromes?</p> <p>5 A. I would ask where this is coming from.</p> <p>6 MR. JAMES: Objection again. If you're</p> <p>7 reading from the paper, I'd like you to give her</p> <p>8 a copy of the paper.</p> <p>9 MS. THOMPSON: I'm just asking her if she</p> <p>10 agrees with that statement.</p> <p>11 MR. JAMES: You're reading from a paper that</p> <p>12 you haven't shown her.</p> <p>13 Q. I'm not reading from the paper because I</p> <p>14 don't have it, so I'm going to ask if you agree or</p> <p>15 disagree with that statement. It's a paper you</p> <p>16 cited.</p> <p>17 MR. JAMES: Objection to the form.</p> <p>18 Q. You can't answer it, just say you can't</p> <p>19 answer it. That's fine.</p> <p>20 MR. JAMES: If you need to see the paper,</p> <p>21 just tell her you need to see the paper.</p> <p>22 A. I'd like to see the paper.</p> <p>23 Q. Okay. So you can't tell me whether you</p> <p>24 agree with that statement or not?</p> <p>25 MS. O'DELL: Object to the form. Please</p>

<p style="text-align: right;">Page 50</p> <p>1 don't coach the witness.</p> <p>2 MR. JAMES: Right.</p> <p>3 A. I believe you mentioned the name Nguyen as</p> <p>4 the author.</p> <p>5 Q. That's the paper you cited. There are two.</p> <p>6 Nguyen and Jones, 43 and 44 on your reliance list.</p> <p>7 A. If I may, those are two of many articles</p> <p>8 that are cited throughout this entire section. If I</p> <p>9 cited all articles that show that family history and</p> <p>10 genetics are the strongest risk factors for ovarian</p> <p>11 cancer, I could fill up a page with citations. So</p> <p>12 those are two of the first articles that said that,</p> <p>13 so that's why there is only two there.</p> <p>14 In terms of heritable risk, in my report I</p> <p>15 go through and talk about what proportion of ovarian</p> <p>16 cancer is likely to be heritable. I've published on</p> <p>17 the topic. I'd have to see the article to comment</p> <p>18 on what you're talking about there.</p> <p>19 MS. THOMPSON: And I'll object to that whole</p> <p>20 answer as being nonresponsive.</p> <p>21 Q. When you make the statement, the first</p> <p>22 statement in the section, the strongest risk factor</p> <p>23 for ovarian cancer is having a family history of or</p> <p>24 genetic predisposition to ovarian cancer or breast</p> <p>25 cancer, you give two cites for that statement. Do</p>	<p style="text-align: right;">Page 52</p> <p>1 published widely on talcum powder and ovarian</p> <p>2 cancer, correct?</p> <p>3 A. He has.</p> <p>4 Q. Has malignant transformation been</p> <p>5 demonstrated for this hypothesis?</p> <p>6 MR. JAMES: Objection to that form.</p> <p>7 A. I would have to comb more in the literature</p> <p>8 to remind myself about that.</p> <p>9 Q. You don't know sitting here today?</p> <p>10 A. I can't point out something as clearly as I</p> <p>11 could for other hypotheses.</p> <p>12 Q. And has this hypothesis been proven?</p> <p>13 MR. JAMES: Objection to that form, please.</p> <p>14 A. I don't know if I'd say proven per se, but</p> <p>15 there is plausibility for why it makes sense.</p> <p>16 Q. And so it would be compelling, in your view?</p> <p>17 MR. JAMES: Objection to that form.</p> <p>18 A. I didn't say compelling.</p> <p>19 Q. Oh, so it would not be compelling, in your</p> <p>20 view?</p> <p>21 A. I would say it's not as high on my list of</p> <p>22 hypotheses as, say, the incessant ovulation</p> <p>23 hypothesis.</p> <p>24 Q. What is the mechanism? Describe the</p> <p>25 mechanism for me that causes that elevated</p>
<p style="text-align: right;">Page 51</p> <p>1 you agree with that?</p> <p>2 A. Yes.</p> <p>3 Q. Okay.</p> <p>4 MR. JAMES: Just objection to the form,</p> <p>5 please.</p> <p>6 Q. On Page 13 you discuss the hypothesis,</p> <p>7 including the gonadotropin hypothesis, and you state</p> <p>8 that the gonadotropin hypothesis posits that</p> <p>9 stimulation -- do you see where I am?</p> <p>10 A. I do.</p> <p>11 Q. -- of the ovarian surface epithelium by</p> <p>12 gonadotropins, a luteinizing hormone and</p> <p>13 follicle-stimulating hormone, promotes an increased</p> <p>14 ovarian cancer risk by overstimulating the ovarian</p> <p>15 epithelium, causing increased proliferation and</p> <p>16 subsequent malignant transformation.</p> <p>17 Is this mechanism plausible?</p> <p>18 A. I believe it is.</p> <p>19 Q. And do you know who you cite, the article</p> <p>20 that you cite for that, 127? Do you need to look</p> <p>21 that up?</p> <p>22 A. I do. I mean, this is a report that goes</p> <p>23 back many years, so I have to remember who I cited.</p> <p>24 Yeah, so that one is Dr. Cramer from 1983.</p> <p>25 Q. And that's the same Dr. Cramer that has</p>	<p style="text-align: right;">Page 53</p> <p>1 gonadotropins that cause increased proliferation and</p> <p>2 subsequent malignant transformation?</p> <p>3 MR. JAMES: Just objection to the form.</p> <p>4 A. I'd like to say the first sentence that you</p> <p>5 already read basically describes how that works, by</p> <p>6 stimulating the ovarian epithelium with those surges</p> <p>7 and those hormones.</p> <p>8 Q. Do you agree that elevated gonadotropins can</p> <p>9 be caused by exposure to chemicals or metabolites</p> <p>10 toxic to follicles?</p> <p>11 MR. JAMES: Objection to the form, please.</p> <p>12 A. Again, I'd have to look more closely at that</p> <p>13 literature.</p> <p>14 Q. Okay. But you will agree that Dr. Cramer's</p> <p>15 study of 19 -- in 1983 that you cite regarding the</p> <p>16 gonadotropin hypothesis was not litigation driven,</p> <p>17 correct?</p> <p>18 MR. JAMES: Objection to form.</p> <p>19 A. It would precede all the litigation, so I</p> <p>20 don't believe it was litigation driven.</p> <p>21 Q. On Page 14 you discuss lifetime ovulatory</p> <p>22 history, correct? Top of 14.</p> <p>23 A. I'm not seeing it on the top of 14.</p> <p>24 MR. JAMES: It starts on 13 and rolls to 14,</p> <p>25 if I can say that.</p>

<p style="text-align: right;">Page 54</p> <p>1 A. Lifetime ovulatory history I think I discuss 2 in the pages prior, starting on, like, 11 and 12. 3 Q. Okay. But let's look at Page 14, where you 4 discuss the Nurses' Health Study and other studies 5 looking at ovulation and the risk for ovarian 6 cancer. 7 A. Where exactly are you referring to? I'm on 8 Page 14. 9 Q. Let's just look at the top of Page 14. 10 A. Yeah. 11 Q. Before you started parity. 12 A. Okay. 13 Q. And this is under the section of Hormonal 14 and Reproductive Factors. Okay? 15 A. Sure. 16 Q. And you state -- this is the last two 17 sentences of that paragraph: Studies conducted 18 among populations with different distributions of 19 age of menarche and age at menopause indicate 20 differences in the heritability of factors across 21 ancestral groups. 22 We have already determined that you consider 23 lifetime ovulatory risk as a -- let me make sure I 24 state it correctly -- as contributing to ovarian 25 cancer development.</p>	<p style="text-align: right;">Page 56</p> <p>1 likely to be diagnosed with ovarian cancer than 2 women in the lowest percentile. 3 Then we go on to later studies where there 4 was a meta-analysis done later that showed more than 5 a 2.26 time higher odds of epithelial ovarian 6 cancer. Just, I don't know, consistently, 7 regardless of the study design, cohort, 8 case-control, it's -- and in terms of biological 9 plausibility, lifetime ovulatory cycles appear to 10 contribute to ovarian cancer. 11 And that's why I put, back to Page 14, that 12 that should be strongly considered and cited three 13 studies that support that opinion. 14 Q. And you didn't read the sentence that says: 15 Ovarian cancer risk increased 14 percent -- 16 A. Where is that sentence? 17 Q. -- for each -- 18 In that same paragraph you read: ...for 19 each five-year increase, adjustment for parity and 20 oral contraceptive use, 1.08, serous 1.13, 21 endometrioid 1.20, clear cell 1.37, and nonmucinous, 22 did you? You did not read that part? 23 A. You were asking me to comment on a few 24 things, but yes, I have that written as well. 25 Q. Okay. I just asked if you read that part.</p>
<p style="text-align: right;">Page 55</p> <p>1 And the last sentence it says: 2 Nevertheless, evidence suggests any magnitude of 3 effect is likely small for age at menarche or age at 4 menopause by themselves and that lifetime ovulatory 5 history should be considered. 6 Do you agree that the magnitude of effect of 7 lifetime ovulatory history is small as a risk 8 factor? 9 MR. JAMES: Objection to the form there. 10 A. I think there is -- I don't know that I 11 agree with that. If we go to my lifetime ovulatory 12 history section, you know, it depends on the study 13 but we're talking more than like a twofold risk for 14 many of the studies. 15 Q. Where are you? 16 A. I'm on Page 12. 17 Q. And which study are you looking at that is 18 more than a twofold? 19 A. I was just looking at what was popping out 20 to me from the page, but if we go -- if we go near 21 the top of Page 12 and we talk about a study by 22 Trabert and the Ovarian Cancer Cohort Consortium, 23 where they had analysis of 20 prospective cohorts, 24 they found that women with the highest lifetime 25 ovulatory cycle percentile are nearly two times more</p>	<p style="text-align: right;">Page 57</p> <p>1 Let's go to Page 16, and on Page 16 you 2 discuss lactation or breastfeeding as being a 3 protective factor, correct? 4 A. Correct. 5 Q. And is that your opinion? 6 A. It is. 7 Q. And do you -- what do you mean by protective 8 factor? 9 A. That risk reduction for ovarian cancer has 10 been observed amongst women who breast fed as 11 compared to women who did not, thus, it was a 12 protective factor. 13 Q. And in this paper that you're citing here is 14 the Babic paper, correct, 201? 15 A. 201? Yeah, I was going to say I cite many 16 things. Okay. So a pooled analysis, yeah. 17 Q. And this is from the ovarian cancer 18 association consortium, correct? 19 A. Yes. 20 Q. And you're a member of that group, correct? 21 A. Yes. 22 Q. But you're not on this paper; is that right? 23 A. I believe I would not be on that one. 24 Q. Are you on any of the OCAC studies that look 25 at either inflammation or talc?</p>

<p style="text-align: right;">Page 58</p> <p>1 A. I don't recall being directly involved in</p> <p>2 those.</p> <p>3 MS. THOMPSON: We'll mark this as Exhibit 9,</p> <p>4 this Babic study.</p> <p>5 (Permut Exhibit 9 was marked for identification.)</p> <p>6 THE WITNESS: Thank you.</p> <p>7 MS. THOMPSON: And on this one, I only have</p> <p>8 one extra copy.</p> <p>9 MS. O'DELL: Scott, I'll e-mail you.</p> <p>10 BY MS. THOMPSON:</p> <p>11 Q. And this paper has numerous authors as part</p> <p>12 of OCAC, right?</p> <p>13 A. Yes.</p> <p>14 Q. And you recognize many of these, correct?</p> <p>15 A. Yes.</p> <p>16 Q. Including ones that have published on talcum</p> <p>17 powder?</p> <p>18 A. Yes.</p> <p>19 Q. Those that I see immediately are Dr. Harris,</p> <p>20 correct?</p> <p>21 A. Yes.</p> <p>22 Q. Dr. Ness, correct?</p> <p>23 A. Yes.</p> <p>24 Q. Dr. Schildkraut, correct?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 60</p> <p>1 powder matter?</p> <p>2 MR. JAMES: Just objection; again, calls for</p> <p>3 speculation.</p> <p>4 A. I know that at least one of these</p> <p>5 individuals serves as a plaintiff witness, as an</p> <p>6 expert witness, so our opinions would not be the</p> <p>7 same regarding this topic.</p> <p>8 Q. And there's more than one, but can you</p> <p>9 identify any of these that would support your</p> <p>10 opinions in this case? If not, say it.</p> <p>11 MR. JAMES: Just --</p> <p>12 Q. I cannot identify or I don't know.</p> <p>13 MR. JAMES: Same objection; calls for</p> <p>14 speculation.</p> <p>15 A. I'm kind of not following your question</p> <p>16 here.</p> <p>17 Q. The authors that I just named, Dr. Harris,</p> <p>18 Dr. Cramer, Dr. Ness, Dr. Schildkraut, Dr. Wu,</p> <p>19 Dr. Terry, have any of them published papers that</p> <p>20 you have seen that do not find an association with</p> <p>21 talcum powder use in ovarian cancer?</p> <p>22 MR. JAMES: Just objection to the form.</p> <p>23 MS. THOMPSON: That's not speculation.</p> <p>24 MR. JAMES: That's why I changed it to form.</p> <p>25 MS. THOMPSON: Oh, okay.</p>
<p style="text-align: right;">Page 59</p> <p>1 Q. Dr. Titus?</p> <p>2 A. I don't know Dr. Titus but, yes, I see</p> <p>3 that.</p> <p>4 Q. Dr. Cramer?</p> <p>5 A. Yes.</p> <p>6 Q. Dr. Wu?</p> <p>7 A. Yep.</p> <p>8 Q. And Dr. Terry?</p> <p>9 A. Yes.</p> <p>10 Q. Do any of those authors that are on the</p> <p>11 breastfeeding study have the opinions that you do</p> <p>12 regarding talcum powder?</p> <p>13 MR. JAMES: Just objection to the form;</p> <p>14 calls for speculation.</p> <p>15 A. Yeah, I wouldn't know.</p> <p>16 Q. You don't know whether Dr. Harris, Dr. Ness,</p> <p>17 Dr. Cramer, Dr. Schildkraut, Dr. Wu, Dr. Terry --</p> <p>18 A. Well, knowing --</p> <p>19 MS. O'DELL: I don't think she finished her</p> <p>20 question.</p> <p>21 Q. Let me finish my question.</p> <p>22 A. Yeah.</p> <p>23 Q. You don't know, based on either</p> <p>24 conversations or by reviewing their literature,</p> <p>25 whether they support your opinions in this talcum</p>	<p style="text-align: right;">Page 61</p> <p>1 A. I would say many of the individuals you've</p> <p>2 commented on have published opinions that differ</p> <p>3 than mine, if that's what you're asking, yes.</p> <p>4 Q. Yes. And this is a breastfeeding paper, so</p> <p>5 it doesn't really have anything to do with talcum</p> <p>6 powder, does it?</p> <p>7 A. I haven't looked at the article in a while,</p> <p>8 so I don't even know if they mention talc, but it</p> <p>9 shouldn't.</p> <p>10 Q. And of the other authors, are you aware of</p> <p>11 anyone that would share your opinions?</p> <p>12 MR. JAMES: Objection; calls for</p> <p>13 speculation.</p> <p>14 MS. THOMPSON: If you're not aware, it's not</p> <p>15 speculation, so...</p> <p>16 A. This is not something I go out and talk</p> <p>17 about, so I don't know.</p> <p>18 Q. And I don't know is a perfectly acceptable</p> <p>19 answer. That's fine.</p> <p>20 So let's look at the Babic paper that's</p> <p>21 relating to breast cancer with a 24 percent reduced</p> <p>22 risk by authors from Ovarian Cancer Association</p> <p>23 Consortium, and you state that: Lactation is a</p> <p>24 modifiable factor that protects against EOC,</p> <p>25 especially for long-term duration. Experts from the</p>

<p style="text-align: right;">Page 62</p> <p>1 National Cancer Institute Screening Prevention Board</p> <p>2 have listed breast feeding as a factor with adequate</p> <p>3 evidence of decreased risks for ovarian cancer.</p> <p>4 So, in your opinion, you agree with the</p> <p>5 authors' conclusions, correct?</p> <p>6 A. I'm reading it right now again.</p> <p>7 Yes.</p> <p>8 Q. And what is a mechanism for how</p> <p>9 breastfeeding reduces the risk of ovarian cancer?</p> <p>10 A. The mechanism that I feel is most plausible</p> <p>11 relates to incessant ovulation, so lactation or</p> <p>12 breastfeeding helps to suppress ovulatory cycles,</p> <p>13 and by doing so, that can lower ovarian cancer risk.</p> <p>14 Q. So that's tied in with the incessant</p> <p>15 ovulation theory?</p> <p>16 A. Yes.</p> <p>17 Q. And what do the authors say about the</p> <p>18 mechanism?</p> <p>19 A. I'm looking right now and it says the</p> <p>20 leading hypothesis has been that ovulation</p> <p>21 suppression during breast feeding inhibits</p> <p>22 epithelial division and proliferation, thereby</p> <p>23 reducing the opportunity to initiate or promote</p> <p>24 carcinogenesis.</p> <p>25 So that is in line with what I just said.</p>	<p style="text-align: right;">Page 64</p> <p>1 It depends on how one defines magnitudes of</p> <p>2 association.</p> <p>3 Q. Okay. Let's see what the authors say about</p> <p>4 the mechanism, and I am reading: Biological</p> <p>5 mechanisms through which breastfeeding could reduce</p> <p>6 ovarian cancer risks are not well understood.</p> <p>7 A. Where are you?</p> <p>8 Q. Top of Page -- well, the pages aren't</p> <p>9 numbered, but just before the strengths and</p> <p>10 limitations on the next to last page of the paper.</p> <p>11 A. Okay. I'm in that paragraph above where I</p> <p>12 had read information. Is that where you're at?</p> <p>13 Q. I'm reading the paragraph that begins</p> <p>14 "biological mechanisms."</p> <p>15 A. Yes.</p> <p>16 Q. Okay. Biological mechanisms through which</p> <p>17 breastfeeding could reduce ovarian cancer risk are</p> <p>18 not well understood.</p> <p>19 Do you agree with that?</p> <p>20 A. They're not completely understood, so, yes,</p> <p>21 I could agree with that.</p> <p>22 Q. To date, the leading hypothesis has been</p> <p>23 that ovulation suppression during breastfeeding</p> <p>24 inhibits epithelial cell division and proliferation,</p> <p>25 thereby reducing the opportunity to initiate or</p>
<p style="text-align: right;">Page 63</p> <p>1 Q. And so this mechanism is plausible, correct?</p> <p>2 A. It seems so.</p> <p>3 Q. And the 24 percent reduction is significant,</p> <p>4 in your opinion?</p> <p>5 MR. JAMES: Objection to the form.</p> <p>6 A. I think that -- I don't know. Because there</p> <p>7 is plausibility behind it, I think it's important</p> <p>8 for women to know this information, so in that</p> <p>9 respect, yes, I think it's significant information.</p> <p>10 If it's modifiable and could lower risks for women,</p> <p>11 yes.</p> <p>12 Q. And is it your opinion that the plausibility</p> <p>13 of breastfeeding and the risk reduction is more</p> <p>14 compelling than the data regarding talcum powder and</p> <p>15 ovarian cancer?</p> <p>16 MR. JAMES: Just object to form.</p> <p>17 A. Hands down. I mean, I consider this an</p> <p>18 established protective factor against ovarian</p> <p>19 cancer, and talc, I feel the data is inconclusive.</p> <p>20 Q. Is it a weak association, in your mind?</p> <p>21 A. No, I wouldn't necessarily say weak.</p> <p>22 Q. Even though it's only a 24 percent</p> <p>23 reduction?</p> <p>24 MR. JAMES: Just object to form.</p> <p>25 A. It's on the border, I guess. I don't know.</p>	<p style="text-align: right;">Page 65</p> <p>1 promote carcinogenesis.</p> <p>2 And that was what you thought to be the</p> <p>3 mechanism, correct?</p> <p>4 A. A main mechanism.</p> <p>5 Q. Main mechanism. And this further states:</p> <p>6 This may especially be pertinent in the first few</p> <p>7 months postpartum when immune function and tumor</p> <p>8 surveillance mechanisms remain suppressed.</p> <p>9 Do you agree with that statement by the</p> <p>10 authors?</p> <p>11 A. Yes.</p> <p>12 Q. Next: However, we observed a stronger</p> <p>13 inverse association with longer breastfeeding</p> <p>14 duration suggesting anovulation cannot entirely</p> <p>15 explain the association because ovulation typically</p> <p>16 returns once solids are introduced. Several lines</p> <p>17 of evidence suggest that breastfeeding may also be</p> <p>18 associated with long-term modulation of</p> <p>19 inflammatory, immune or metabolic pathways which</p> <p>20 could influence ovarian cancer.</p> <p>21 Do you agree with that statement by the</p> <p>22 authors?</p> <p>23 MR. JAMES: Just objection to form, please.</p> <p>24 A. I'd have to look at the supporting articles</p> <p>25 there, but it makes sense that it's a combination of</p>

<p style="text-align: right;">Page 66</p> <p>1 those pathways that they mention.</p> <p>2 Q. But your opinion is that --</p> <p>3 A. Mostly immune surveillance would be</p> <p>4 important.</p> <p>5 Q. Okay. So you agree that immune factors can</p> <p>6 play a role in ovarian carcinogenesis, correct?</p> <p>7 A. They may.</p> <p>8 Q. Do they?</p> <p>9 MR. JAMES: Just objection; asked and</p> <p>10 answered.</p> <p>11 A. I believe they may.</p> <p>12 Q. To a medical degree -- to a reasonable</p> <p>13 degree of medical certainty, do immune factors play</p> <p>14 a role in ovarian carcinogenesis?</p> <p>15 A. I think they can. They may.</p> <p>16 Q. Is it more likely than not that they do?</p> <p>17 MR. JAMES: Just objection to form.</p> <p>18 A. Knowing what we know about cancer and immune</p> <p>19 surveillance, I think that the immune system plays</p> <p>20 an important role in all cancers.</p> <p>21 Q. Okay. But inflammation does not in ovarian</p> <p>22 cancer?</p> <p>23 A. I have not seen strong data to support that</p> <p>24 and, understandably, it is a factor or a pathway</p> <p>25 mentioned here.</p>	<p style="text-align: right;">Page 68</p> <p>1 paragraph?</p> <p>2 MS. THOMPSON: The bottom of the first</p> <p>3 paragraph.</p> <p>4 A. I found where you are reading that. To</p> <p>5 answer your question, I'd need to look again at the</p> <p>6 article to comment more on --</p> <p>7 Q. But this is your quote from the article?</p> <p>8 A. That's what they concluded.</p> <p>9 Q. Okay. And you didn't state in your report</p> <p>10 that you disagree with that conclusion?</p> <p>11 A. Right, so I probably didn't feel strongly to</p> <p>12 disagree.</p> <p>13 Q. Okay. And do you think that the 1 extra</p> <p>14 ovarian cancer death per 1700 users is significant?</p> <p>15 MR. JAMES: Just objection to the form</p> <p>16 there, please.</p> <p>17 A. Can you define what you mean by significant?</p> <p>18 Q. What do you mean by significant?</p> <p>19 MR. JAMES: No.</p> <p>20 Q. Is it's important? However you want to --</p> <p>21 however you want to categorize it.</p> <p>22 A. I guess, to me, to be honest, any loss of</p> <p>23 life is significant or important, so if there is</p> <p>24 something that can be done to modify that risk, I</p> <p>25 would want to know about it so as not to lose lives.</p>
<p style="text-align: right;">Page 67</p> <p>1 Q. Is the evidence presented in this paper on</p> <p>2 breastfeeding robust, in your opinion?</p> <p>3 A. I'd have to go through and look at it again</p> <p>4 but I don't recall anything that was not robust.</p> <p>5 Q. Let's go next to Page 18 of your report, and</p> <p>6 regarding -- I'm just reading from your report</p> <p>7 now -- the HRT use, which you also considered one of</p> <p>8 your factors that could contribute to the cause of</p> <p>9 development of ovarian cancer, there is -- the risk</p> <p>10 ratio you presented is 1.43 with less than five</p> <p>11 years of use, and the authors concluded that the</p> <p>12 increased risk may well be largely or wholly causal.</p> <p>13 If it is, women who used hormone therapy for five</p> <p>14 years from around age 50 years have about 1 extra</p> <p>15 ovarian cancer per 1,000 users, and if its prognosis</p> <p>16 is typical, about 1 extra ovarian cancer per 1700</p> <p>17 users.</p> <p>18 First of all, do you have reason to disagree</p> <p>19 with the authors that the hormone therapy use may</p> <p>20 well be largely or wholly causal?</p> <p>21 MR. JAMES: Just objection for the form. I</p> <p>22 didn't see where you were reading.</p> <p>23 MS. THOMPSON: I'm reading from her report,</p> <p>24 Page 18.</p> <p>25 MR. JAMES: In the bottom of the first</p>	<p style="text-align: right;">Page 69</p> <p>1 Q. And do you have any idea how that compares</p> <p>2 with what is estimated regarding how many ovarian</p> <p>3 cancer cases and deaths could be prevented if talcum</p> <p>4 powder had not been used?</p> <p>5 MR. JAMES: Just objection to the form,</p> <p>6 please.</p> <p>7 Q. And if you don't know, say you don't know.</p> <p>8 I'm asking if you know how it compares.</p> <p>9 MR. JAMES: Objection to the form, please.</p> <p>10 A. What you're referring to gets into</p> <p>11 attributable risk and how much a disease do you</p> <p>12 think is attributed to a certain exposure, and an</p> <p>13 assumption there is causality. I don't believe talc</p> <p>14 causes ovarian cancer, thus, I wouldn't assign an</p> <p>15 attributable portion to it.</p> <p>16 Q. Well, I'm not asking if you assigned</p> <p>17 attributable portion. I'm asking if you're aware of</p> <p>18 the literature that has made the same estimate that</p> <p>19 these authors did with hormone replacement.</p> <p>20 A. I'm aware that estimates have been made,</p> <p>21 including by plaintiffs' experts. I can't quantify</p> <p>22 for you now how that compares to this.</p> <p>23 Q. And I didn't ask about plaintiffs' experts,</p> <p>24 did I? I asked in the literature, are you aware of</p> <p>25 any estimates that have been made?</p>

<p style="text-align: right;">Page 70</p> <p>1 MR. JAMES: Objection; asked and answered.</p> <p>2 MS. THOMPSON: She said she was aware of</p> <p>3 plaintiffs' experts that have made. I'm asking</p> <p>4 if you're aware of any literature, peer-reviewed</p> <p>5 literature that have made estimates.</p> <p>6 MR. JAMES: No. Objection; asked and</p> <p>7 answered.</p> <p>8 MS. THOMPSON: You think those are the same</p> <p>9 question?</p> <p>10 MR. JAMES: Just keep going.</p> <p>11 MS. THOMPSON: Okay.</p> <p>12 BY MR. JAMES:</p> <p>13 Q. Are those the same question in your mind,</p> <p>14 whether it's plaintiffs' experts --</p> <p>15 A. I thought.</p> <p>16 Q. -- opining on something and the</p> <p>17 literature --</p> <p>18 A. I thought you may have just asked a general</p> <p>19 question about are you aware of estimates, and</p> <p>20 that's why I said --</p> <p>21 Q. Let me repeat my question so it's clear.</p> <p>22 Are you aware of any literature,</p> <p>23 peer-reviewed literature, that has made estimates as</p> <p>24 to how many cases of cancer or how many cancer</p> <p>25 deaths would be prevented by not having talcum</p>	<p style="text-align: right;">Page 72</p> <p>1 attenuated their risk estimates.</p> <p>2 But you had asked me if I had identified any</p> <p>3 articles that commented on attribution to talc, so</p> <p>4 that was one I thought of.</p> <p>5 Q. Well, that's wasn't exactly my question. My</p> <p>6 question was are you aware of any articles that</p> <p>7 estimate how many cancers of ovarian cancer could be</p> <p>8 prevented if talcum powder was not used?</p> <p>9 MR. JAMES: Just objection to the form,</p> <p>10 please.</p> <p>11 A. At the moment --</p> <p>12 Q. Do you understand my question?</p> <p>13 A. I do. At the moment, I can't recount one.</p> <p>14 Q. Okay. Thank you. And on the hormone</p> <p>15 replacement, the lead author is Dr. Beral. Does</p> <p>16 that sound right?</p> <p>17 A. Are we back on --</p> <p>18 Q. It's Page --</p> <p>19 MR. JAMES: What page are we back on?</p> <p>20 Q. We're back on Page 18, and the cite is 240.</p> <p>21 Do you have that? It's by Beral, et al.</p> <p>22 A. I'm looking at what -- okay. From 2015.</p> <p>23 Okay.</p> <p>24 Q. And published in Lancet. Do you remember</p> <p>25 seeing the authors on this paper?</p>
<p style="text-align: right;">Page 71</p> <p>1 powder usage?</p> <p>2 A. I am aware and I believe I have cited I</p> <p>3 believe at least one in my report.</p> <p>4 Q. Which one are you citing?</p> <p>5 A. I'd have to look through my report and see.</p> <p>6 I believe it's from Dr. Peres or a colleague. I'd</p> <p>7 have to look.</p> <p>8 Q. Okay. Go ahead and look through your report</p> <p>9 and see which article you're referring to.</p> <p>10 A. Yeah, so I was right, an article by Peres</p> <p>11 and colleague, Citation 529. I'm on Page 71. It</p> <p>12 doesn't quantify how many deaths would be prevented</p> <p>13 but there's a population attributable risk that is</p> <p>14 mentioned related to African-American women and</p> <p>15 that, you know, the effect estimates would be higher</p> <p>16 for African-American women than White women.</p> <p>17 Q. And what did the Peres article conclude?</p> <p>18 A. Let me go to the next page. They talked</p> <p>19 about how those pars were higher in African-American</p> <p>20 than White women, stratification by histology and</p> <p>21 menopausal status revealed higher pars amongst</p> <p>22 nonhigh-grade serous, versus high-grade serous and</p> <p>23 among premenopausal versus postmenopausal women. I</p> <p>24 noted that they didn't account for fibroids or</p> <p>25 douching as covariants, and they would have likely</p>	<p style="text-align: right;">Page 73</p> <p>1 A. I don't recall, and in my citations it has</p> <p>2 an et al. for everyone else.</p> <p>3 Q. Do you remember seeing that there are dozens</p> <p>4 of authors on the paper and it's an international</p> <p>5 paper?</p> <p>6 MR. JAMES: Just objection to the form, and</p> <p>7 asked and answered. She said she didn't recall.</p> <p>8 A. Correct, I don't recall. I don't have it in</p> <p>9 front of me.</p> <p>10 Q. Okay. And do you agree that this would be a</p> <p>11 small risk according to your criteria?</p> <p>12 MR. JAMES: Just objection to the form,</p> <p>13 please.</p> <p>14 MS. THOMPSON: Might as well just give a</p> <p>15 standing objection to every question I ask.</p> <p>16 MR. JAMES: Margaret, I'm making objections</p> <p>17 as I'm allowed. You can keep going.</p> <p>18 MS. THOMPSON: I understand.</p> <p>19 MR. JAMES: Okay.</p> <p>20 A. Your question, a small risk?</p> <p>21 Q. Is this a small risk, what you cite in</p> <p>22 Paragraph - on Paragraph 18?</p> <p>23 MR. JAMES: Same objection to the form and</p> <p>24 the wording.</p> <p>25 Q. Do you understand what small risk means?</p>

<p style="text-align: right;">Page 74</p> <p>1 MR. JAMES: Same objection.</p> <p>2 A. What context, what are you asking about the</p> <p>3 study itself?</p> <p>4 Q. In Dr. Permuth's opinion, is the risk that</p> <p>5 you cite of 1.43 from this paper small --</p> <p>6 MR. JAMES: Same objection.</p> <p>7 Q. -- or large, or something else, any word you</p> <p>8 want to use?</p> <p>9 MR. JAMES: Okay. Same objection, please.</p> <p>10 A. I wouldn't classify it as large.</p> <p>11 Q. Okay. So it's not large. Can you classify</p> <p>12 beyond that?</p> <p>13 A. Maybe weaker to moderate. I don't know.</p> <p>14 Q. Okay. Are you aware that WHO does not</p> <p>15 mention hormone therapy as a risk factor for ovarian</p> <p>16 cancer?</p> <p>17 A. I would have to look at the WHO resources.</p> <p>18 Q. Okay.</p> <p>19 A. That are up-to-date.</p> <p>20 Q. But this is plausible, in your mind?</p> <p>21 A. Yes.</p> <p>22 Q. This relationship?</p> <p>23 A. Yes.</p> <p>24 MS. THOMPSON: Okay. Should we take a</p> <p>25 break? It's one and a half hours.</p>	<p style="text-align: right;">Page 76</p> <p>1 A. I do.</p> <p>2 Q. And it's one of the factors, I believe, that</p> <p>3 you listed as the factor that can contribute to the</p> <p>4 development of ovarian cancer, correct?</p> <p>5 A. Right.</p> <p>6 Q. And what is the mechanism for obesity --</p> <p>7 well, let's just say what you say.</p> <p>8 And you do state that it's a modifiable risk</p> <p>9 factor and weight control and having a physical</p> <p>10 active lifestyle is important, correct?</p> <p>11 A. Yes.</p> <p>12 Q. What is the mechanism for obesity being a</p> <p>13 possible contributor to causing the development of</p> <p>14 ovarian cancer?</p> <p>15 A. Got it. So I think the bulk of literature</p> <p>16 kind of shows what I'm summarizing on Page 22, and</p> <p>17 what Dai will talk about in his article. So,</p> <p>18 basically, adipose tissue throughout the body can</p> <p>19 secrete certain proteins, various classes of them,</p> <p>20 including adipokines, metabolic-type proteins and</p> <p>21 others that really can regulate the immune system in</p> <p>22 the microenvironment.</p> <p>23 Q. And would you include inflammation with that</p> <p>24 as well?</p> <p>25 A. In this context, the article -- this article</p>
<p style="text-align: right;">Page 75</p> <p>1 MR. JAMES: If you want to, that's fine.</p> <p>2 MS. THOMPSON: Would you like a break,</p> <p>3 Dr. Permuth?</p> <p>4 THE WITNESS: Sure.</p> <p>5 (Recess from 10:39 a.m. until 10:51 a.m.)</p> <p>6 BY MS. THOMPSON:</p> <p>7 Q. Dr. Permuth, beginning on Page 19, you</p> <p>8 discuss obesity as a risk factor, correct?</p> <p>9 A. Yes. Correct.</p> <p>10 Q. One of the cases that -- or one of the</p> <p>11 articles that you cite is the Dai article. Are you</p> <p>12 familiar with that one?</p> <p>13 A. I know I've read it. I don't have all the</p> <p>14 details at my fingertips other than what's in the</p> <p>15 report. What citation is that one?</p> <p>16 Q. The citation for the Dai is -- ooh, let's</p> <p>17 see. 269.</p> <p>18 A. You said 269. Okay. Got it.</p> <p>19 Q. I will show you the Dai article. We'll mark</p> <p>20 it as Exhibit 10.</p> <p>21 (Permuth Exhibit 10 was marked for identification.)</p> <p>22 THE WITNESS: Thank you.</p> <p>23 MS. THOMPSON: I just have one copy.</p> <p>24 Q. And do you believe that obesity is a risk</p> <p>25 factor for ovarian cancer?</p>	<p style="text-align: right;">Page 77</p> <p>1 may have talked about inflammatory markers. Some</p> <p>2 inflammatory markers, called cytokines, can</p> <p>3 contribute to inflammation or proinflammatory</p> <p>4 processes. I forget all the details of this</p> <p>5 article, so I would have to look if they comment on</p> <p>6 -- yes, they do comment on inflammatory cytokines.</p> <p>7 Q. Let's just read from the abstract what the</p> <p>8 authors do pose as the mechanism: There is growing</p> <p>9 evidence that adipocytes play important roles in the</p> <p>10 progression of multiple cancers. Moreover, in</p> <p>11 obesity, adipocytes alter their original functions</p> <p>12 and contribute to the metabolic and inflammatory</p> <p>13 changes of adipose tissue microenvironment which can</p> <p>14 further enhance tumor development.</p> <p>15 It goes on to say that: The roles of</p> <p>16 adipocytes in the pathogenesis of epithelial ovarian</p> <p>17 cancer are far from being elucidated.</p> <p>18 Do you read that?</p> <p>19 A. I'm looking to see where you are in the</p> <p>20 abstract.</p> <p>21 Q. In the abstract.</p> <p>22 A. Yeah, that's a sentence they are using</p> <p>23 before they describe what they did in this study,</p> <p>24 which is a summary.</p> <p>25 Q. And they summarize: The recent advances in</p>

<p style="text-align: right;">Page 78</p> <p>1 understanding the roles of adipocytes in EOC</p> <p>2 progression --</p> <p>3 Is progression related to development?</p> <p>4 A. Progression is typically after development.</p> <p>5 Q. And the authors state that: At present, the</p> <p>6 roles of adipocytes in the pathogenesis of EOC is</p> <p>7 far from being elucidated.</p> <p>8 Correct?</p> <p>9 A. Is that the sentence you just read? Yes.</p> <p>10 Q. Right.</p> <p>11 A. Uh-huh.</p> <p>12 Q. But in your mind, the mechanism is plausible</p> <p>13 for the relationship with ovarian cancer?</p> <p>14 A. That adipocytes can contribute to ovarian</p> <p>15 cancer, development and progression, yes, I believe</p> <p>16 that.</p> <p>17 Q. And what is the odds ratio or risk ratio, in</p> <p>18 your mind, looking at the totality of the obesity</p> <p>19 literature, what is the risk of obesity?</p> <p>20 A. I think it depended on the study, and we see</p> <p>21 a range in the studies that I reported. We see</p> <p>22 ranges from, like, 1.19 to 1.49, and I'm trying to</p> <p>23 look through my -- we see a 1.98 for certain</p> <p>24 histologies. I'm seeing risk estimates across the</p> <p>25 board in my report.</p>	<p style="text-align: right;">Page 80</p> <p>1 times in your report. I just want to understand</p> <p>2 what you mean with "findings should be interpreted</p> <p>3 with caution."</p> <p>4 MR. JAMES: Just object to form.</p> <p>5 A. I think it depends on the context. If --</p> <p>6 I'm trying to see if I used it in this paragraph.</p> <p>7 It -- I don't know. It depends on the context. In</p> <p>8 general, from a perspective of counseling someone,</p> <p>9 which is always what I think about, I want to convey</p> <p>10 information that can be helpful to the individual</p> <p>11 and would never want to convey anything that is</p> <p>12 misleading, so it's important to sometimes consider</p> <p>13 findings with a grain of salt and be cautious about</p> <p>14 them.</p> <p>15 So, again, if there was something specific,</p> <p>16 I could tell you more.</p> <p>17 Q. Is it -- does it generally mean it should be</p> <p>18 discounted, in your mind?</p> <p>19 MR. JAMES: Just object to form.</p> <p>20 A. It would be context dependent, and if I felt</p> <p>21 something should be discounted, then I would</p> <p>22 probably say that.</p> <p>23 Q. Does it mean it should be disregarded?</p> <p>24 MR. JAMES: Object to form.</p> <p>25 A. I think if I used the words "should be</p>
<p style="text-align: right;">Page 79</p> <p>1 Q. Are any over 3?</p> <p>2 A. I'm not seeing any over 3 at the moment.</p> <p>3 Q. Okay. Let's go to Page 26 of your report.</p> <p>4 A. Okay. Are we finished with this?</p> <p>5 Q. Yes.</p> <p>6 A. Okay.</p> <p>7 MS. THOMPSON: And we'll look at the Phung</p> <p>8 paper that we will mark as Exhibit 11.</p> <p>9 (Permuth Exhibit 11 was marked for identification.)</p> <p>10 THE WITNESS: Thank you.</p> <p>11 BY MS. THOMPSON:</p> <p>12 Q. And you're familiar with this paper,</p> <p>13 correct?</p> <p>14 A. Yes.</p> <p>15 Q. It's a relatively recent paper, correct?</p> <p>16 A. Yes.</p> <p>17 Q. Let me ask you something. What do you mean</p> <p>18 when you say that findings should be interpreted</p> <p>19 with caution?</p> <p>20 A. I'm trying to look at where I said that</p> <p>21 first.</p> <p>22 Q. Oh, just -- I think you --</p> <p>23 A. Is it in this paragraph?</p> <p>24 Q. Several times -- I don't know whether --</p> <p>25 yeah, it is in this one, but it's mentioned several</p>	<p style="text-align: right;">Page 81</p> <p>1 considered with cautious," that's truly what I mean</p> <p>2 more so than disregarded.</p> <p>3 Q. Okay. I don't know how many times you used</p> <p>4 it, but frequently. So I would need to ask each</p> <p>5 time when you say "findings should be interpreted</p> <p>6 with caution," what you mean by that; is that</p> <p>7 correct?</p> <p>8 MR. JAMES: Just object to form.</p> <p>9 A. I don't know. To me, I'm going explicit to</p> <p>10 say, you know, one should carefully consider the</p> <p>11 findings. That's what I'm saying, not that they</p> <p>12 should be totally disregarded but --</p> <p>13 Q. Okay.</p> <p>14 A. I always like to provide a balanced review</p> <p>15 of things.</p> <p>16 Q. Okay. So this paper by Phung, et al.,</p> <p>17 published in Fertility and Sterility. What is</p> <p>18 Fertility and Sterility?</p> <p>19 A. It's a journal.</p> <p>20 Q. Is that all you know about it?</p> <p>21 A. I have not --</p> <p>22 MR. JAMES: Object to form.</p> <p>23 A. I have not published there. I believe it's</p> <p>24 a peer-reviewed journal. I don't know their impact</p> <p>25 factor or anything like that.</p>

<p style="text-align: right;">Page 82</p> <p>1 Q. And did you know that it's the journal for</p> <p>2 the American Society of Reproductive Medicine?</p> <p>3 A. I don't know a lot about the journal.</p> <p>4 Q. Do you know what the American Society of</p> <p>5 Reproductive Medicine is?</p> <p>6 A. I do. I do.</p> <p>7 Q. What is it?</p> <p>8 A. I would surmise it's a journal that deals</p> <p>9 with reproductive health, female health maybe.</p> <p>10 Q. I asked about the American Society of</p> <p>11 Reproductive Medicine. Do you know what that is?</p> <p>12 MR. JAMES: Just object to form.</p> <p>13 A. A society who is concerned about</p> <p>14 reproductive health. I don't know. I don't know</p> <p>15 their objective.</p> <p>16 Q. Okay. Well, I will represent to you that</p> <p>17 that's the equivalent of SGO for physicians who have</p> <p>18 specialty training in fertility and gyn</p> <p>19 endocrinology. You're right, it is peer reviewed.</p> <p>20 And there are 24 authors on this paper,</p> <p>21 correct?</p> <p>22 A. I'd have to count them but looks like quite</p> <p>23 a few.</p> <p>24 Q. Quite a few authors. And it is also an OCAC</p> <p>25 publication, correct?</p>	<p style="text-align: right;">Page 84</p> <p>1 Q. But I asked about the authors.</p> <p>2 A. Yes, they stated that.</p> <p>3 Q. Okay. And those authors include</p> <p>4 Dr. Trabert. Do you know Dr. Trabert?</p> <p>5 A. I do.</p> <p>6 Q. Dr. Trabert is at NIH, correct?</p> <p>7 A. Yes, she is.</p> <p>8 Q. And includes Dr. Terry, correct?</p> <p>9 A. Yes.</p> <p>10 Q. And includes Dr. Cramer, correct?</p> <p>11 A. Yes.</p> <p>12 Q. Includes Dr. Berchuck at Duke?</p> <p>13 A. Yes.</p> <p>14 Q. Do you know Dr. Berchuck?</p> <p>15 A. I do.</p> <p>16 Q. It includes Dr. Wu?</p> <p>17 A. Yes.</p> <p>18 Q. Are any of these researches, in your words,</p> <p>19 out of step with established science?</p> <p>20 MR. JAMES: Just objection to the form,</p> <p>21 please.</p> <p>22 A. I'm not sitting here saying they're out of</p> <p>23 step with science.</p> <p>24 Q. But you would -- but you state that</p> <p>25 plaintiff experts are out of step when they say that</p>
<p style="text-align: right;">Page 83</p> <p>1 A. Yes.</p> <p>2 Q. Are you an author on this paper?</p> <p>3 A. I am not on this paper.</p> <p>4 Q. Were you asked to be an author on this</p> <p>5 paper?</p> <p>6 A. No.</p> <p>7 Q. And these authors state on Page 2: Our</p> <p>8 analysis considers 10 well-established ovarian</p> <p>9 cancer risk factors.</p> <p>10 A. May I ask where you are? Oh, I see, second</p> <p>11 paragraph or second column?</p> <p>12 Q. First paragraph on the second column: Our</p> <p>13 analysis considers 10 well-established ovarian</p> <p>14 cancer risk factors, including BMI, talcum powder</p> <p>15 use, and others.</p> <p>16 A. I see where you are reading that.</p> <p>17 Q. Do you disagree that talcum powder use is a</p> <p>18 well-established ovarian cancer risk factor?</p> <p>19 A. I do disagree with that.</p> <p>20 Q. But you do agree that the OCAC authors of</p> <p>21 this paper have stated that talc use is a</p> <p>22 well-established ovarian cancer risk factor,</p> <p>23 correct?</p> <p>24 A. I think that's overstated for that risk</p> <p>25 factor.</p>	<p style="text-align: right;">Page 85</p> <p>1 talc use is a risk factor, right?</p> <p>2 A. Yes, and I definitely agree with my</p> <p>3 sentiments that I would never consider talc as a</p> <p>4 well-established risk factor. Those wordings I</p> <p>5 don't -- that wording I don't agree with.</p> <p>6 Q. So the plaintiff experts are out of step but</p> <p>7 you're not saying these authors are out of step, who</p> <p>8 say the same thing?</p> <p>9 MR. JAMES: Objection to the form;</p> <p>10 mischaracterizes her testimony.</p> <p>11 MS. THOMPSON: Okay. If I mischaracterized</p> <p>12 it, tell me how I did that.</p> <p>13 MR. JAMES: Are you asking about talc</p> <p>14 specifically? Because I think your question is</p> <p>15 broader than that. That's my objection to the</p> <p>16 form. That's the basis of it.</p> <p>17 BY MS. THOMPSON:</p> <p>18 Q. Okay. I am saying that this paper with</p> <p>19 these 24 authors, of which NIH, Duke, Harvard, and</p> <p>20 many that have published on talc, include talcum</p> <p>21 powder use as one of 10 well-established risk</p> <p>22 factors for ovarian cancer, correct?</p> <p>23 A. They are stating that here, yes.</p> <p>24 Q. That was my question. But when the</p> <p>25 plaintiff experts have stated that, you've used</p>

<p style="text-align: right;">Page 86</p> <p>1 words like out of step, you have used words like</p> <p>2 using flawed science, correct? Am I right that</p> <p>3 that's how you have characterized the plaintiff</p> <p>4 experts who have expressed the same opinion?</p> <p>5 MR. JAMES: Specific to talc ovarian cancer?</p> <p>6 MS. THOMPSON: What else would it be?</p> <p>7 MR. JAMES: Objection to form. Sorry.</p> <p>8 Q. Yeah, regarding their relationship with talc</p> <p>9 and ovarian cancer.</p> <p>10 A. So, if I may, when we're talking about this</p> <p>11 article per se, this is not an article that's truly</p> <p>12 specific to talc and ovarian cancer, that's not the</p> <p>13 main emphasis. I disagree with how they state talc</p> <p>14 is a well-established risk factor.</p> <p>15 Q. Okay. That wasn't my question, so I'm --</p> <p>16 A. I'm just not under --</p> <p>17 Q. Okay. My question was are these authors --</p> <p>18 A. So you keep commenting on my "out of step"</p> <p>19 comment, and I'd have to look at where I said it and</p> <p>20 what the context is, because out of step may be</p> <p>21 related to their comments about biologic</p> <p>22 plausibility or other factors where I feel that as a</p> <p>23 whole they're out of step and I disagree with their</p> <p>24 conclusions --</p> <p>25 Q. Okay. We can --</p>	<p style="text-align: right;">Page 88</p> <p>1 discussion.</p> <p>2 Q. Middle of the second paragraph on Page 5.</p> <p>3 A. Page 5. Are you in the discussion?</p> <p>4 Q. Second column, middle of the second</p> <p>5 paragraph under Discussion: Because inflammation --</p> <p>6 A. Okay.</p> <p>7 Q. -- plays a role in the development of many</p> <p>8 cancers, including ovarian cancer...</p> <p>9 A. Yeah, I'm just looking at who they are</p> <p>10 citing for that, Savant. Okay.</p> <p>11 Yeah, they're referring to a review article,</p> <p>12 so I'd be interested in what that says, but, yeah,</p> <p>13 go ahead.</p> <p>14 Q. Okay. We actually can look at the Savant</p> <p>15 article if you're interested.</p> <p>16 And then it goes on to say: ...the increased</p> <p>17 risk specifically among women with endometriosis is</p> <p>18 plausible.</p> <p>19 You didn't mention inflammation as being a</p> <p>20 mechanism by which endometriosis can cause ovarian</p> <p>21 cancer, did you?</p> <p>22 MR. JAMES: Just objection to form.</p> <p>23 A. I'd have to look at the report and what I</p> <p>24 say about inflammation and endometriosis.</p> <p>25 Q. Okay. I think I was referring to what was</p>
<p style="text-align: right;">Page 87</p> <p>1 A. -- that talc causes ovarian cancer.</p> <p>2 Q. We can see if we can find the context for</p> <p>3 that.</p> <p>4 A. Yeah. Okay.</p> <p>5 Q. But you would agree that they -- if they</p> <p>6 consider talcum powder to be a well-established risk</p> <p>7 factor, that they state is included, they're using</p> <p>8 faulty or flawed science, would you agree with that?</p> <p>9 A. I would say that if someone contends or</p> <p>10 indicates that talc is a well-established risk</p> <p>11 factor for ovarian cancer, that that is based on</p> <p>12 flawed science.</p> <p>13 Q. Okay. I think that was my question.</p> <p>14 And the authors' reading of the Phung</p> <p>15 paper -- OCAC publication, right?</p> <p>16 A. (Nodding head.)</p> <p>17 Q. Many of the authors that you have -- I think</p> <p>18 are well regarded, correct?</p> <p>19 A. Yes.</p> <p>20 Q. If we look at Page 5 under the discussion,</p> <p>21 beginning: Because inflammation plays a role in the</p> <p>22 development of many cancers, including ovarian</p> <p>23 cancer...</p> <p>24 You disagree with that statement, correct?</p> <p>25 A. I'm not sure where you're at in the</p>	<p style="text-align: right;">Page 89</p> <p>1 said earlier today in the deposition. Do you</p> <p>2 remember that?</p> <p>3 A. Which part?</p> <p>4 Q. Of the mechanism by which endometriosis</p> <p>5 causes --</p> <p>6 A. Right.</p> <p>7 Q. -- ovarian cancer.</p> <p>8 A. Right.</p> <p>9 Q. Do you think inflammation is involved in</p> <p>10 the --</p> <p>11 A. I don't know that I think it's one of the</p> <p>12 main mechanisms by which endometriosis contributes</p> <p>13 to ovarian cancer.</p> <p>14 Q. Would you disagree with these authors then?</p> <p>15 MR. JAMES: Just object to form.</p> <p>16 Q. Well, let's maybe make that a little more</p> <p>17 specific so it's easier.</p> <p>18 The authors just state that endometriosis is</p> <p>19 considered an inflammatory disease. Do you agree</p> <p>20 with that statement?</p> <p>21 A. Yes, inflammation is part of endometriosis</p> <p>22 and what we know about it, yes.</p> <p>23 Q. Do you agree with the statement</p> <p>24 endometriosis is considered an inflammatory disease?</p> <p>25 MR. JAMES: Object to form. Are you reading</p>

<p style="text-align: right;">Page 90</p> <p>1 that in the paper? I'm sorry.</p> <p>2 MS. THOMPSON: I am reading it in the paper</p> <p>3 but it can be just general -- it's in the same</p> <p>4 paragraph, just above what the sentence I read</p> <p>5 previously.</p> <p>6 Q. Do you agree that endometriosis is</p> <p>7 considered an inflammatory disease?</p> <p>8 A. I do. I see that.</p> <p>9 Q. And then it discusses obesity and the</p> <p>10 mechanism for obesity, and that is overweight women</p> <p>11 with endometriosis may have higher levels of</p> <p>12 inflammation. Both endometriotic foci and adipose</p> <p>13 tissues produce proinflammatory cytokines, including</p> <p>14 TNF, IL-1, IL-6. These proinflammatory cytokines</p> <p>15 have been shown to increase the risk of ovarian</p> <p>16 cancer as they promote synthesis of prostaglandins.</p> <p>17 Prostaglandins inflammatory agents?</p> <p>18 A. They can be involved in the process or the</p> <p>19 pathway.</p> <p>20 Q. Inflammatory pathway?</p> <p>21 A. They can be.</p> <p>22 Q. Which in turn inhibits cell differentiation</p> <p>23 and apoptosis and enhances invasion and</p> <p>24 angiogenesis.</p> <p>25 Those are all in the pathway to ovarian</p>	<p style="text-align: right;">Page 92</p> <p>1 well-regarded scientists would refer to this</p> <p>2 inflammatory process with endometriosis, obesity and</p> <p>3 talc use if they did not think it's plausible, do</p> <p>4 you?</p> <p>5 MR. JAMES: Objection to the form,</p> <p>6 objection, mischaracterize is the article.</p> <p>7 Q. Okay. All right. Let's -- I want to make</p> <p>8 sure I don't mischaracterize the article.</p> <p>9 Endometriosis is considered an inflammatory</p> <p>10 disease.</p> <p>11 Did I read that right?</p> <p>12 A. You did.</p> <p>13 Q. And because inflammation plays a role in the</p> <p>14 development of many cancers, including ovarian</p> <p>15 cancer...</p> <p>16 Did I read that correctly?</p> <p>17 A. Yes, and they cited one study or one review</p> <p>18 article, yes.</p> <p>19 Q. Well, the authors stated it, correct? You</p> <p>20 believe there is just one article that says</p> <p>21 endometriosis is an inflammatory disease?</p> <p>22 MR. JAMES: Objection to the form;</p> <p>23 mischaracterizes her testimony.</p> <p>24 Q. Why is it important to you that they cited</p> <p>25 one article?</p>
<p style="text-align: right;">Page 91</p> <p>1 carcinogenesis, correct?</p> <p>2 A. They can be.</p> <p>3 Q. And this would be also in line with our</p> <p>4 observation of a higher risk associated with genital</p> <p>5 talc use for women with endometriosis since</p> <p>6 inflammation has been proposed as a possible</p> <p>7 biologic mechanism for talc's association with</p> <p>8 ovarian cancer.</p> <p>9 So these authors, at least, say inflammation</p> <p>10 is a possible biologic mechanism for talc's</p> <p>11 association with ovarian cancer. You disagree with</p> <p>12 that, right?</p> <p>13 MR. JAMES: Objection to the form there,</p> <p>14 please.</p> <p>15 A. They say it's a possible mechanism, yes. I</p> <p>16 don't feel that it is -- there's a lot of</p> <p>17 plausibility for it.</p> <p>18 Q. What's the difference between plausibility</p> <p>19 and possibility, in your mind and when you use</p> <p>20 that -- those two words differently?</p> <p>21 A. Plausibility, I am thinking more about the</p> <p>22 biology and what we know and what are alternate</p> <p>23 hypotheses that seem perhaps stronger than</p> <p>24 inflammation.</p> <p>25 Q. But you don't think that these 24 OCAC</p>	<p style="text-align: right;">Page 93</p> <p>1 A. Oh, I'm just commenting on that because you</p> <p>2 had commented earlier that I only cited two articles</p> <p>3 about family history, that's all. So, yes, they</p> <p>4 cited one review article.</p> <p>5 Q. Okay. And then they say: ...the increased</p> <p>6 risk with endometriosis is plausible.</p> <p>7 Is there any mention of any mechanism other</p> <p>8 than inflammation in this paragraph or in this</p> <p>9 paper?</p> <p>10 MR. JAMES: Objection to the form.</p> <p>11 A. I'd have to look through it in detail. I</p> <p>12 would love to see a more balanced discussion with</p> <p>13 other mechanisms that could be possible as well.</p> <p>14 Their focus here was talking about inflammation to</p> <p>15 try to support the hypothesis, so I get why it was</p> <p>16 written that way, but I would also note that some of</p> <p>17 these authors, especially Dr. Trabert, has talked</p> <p>18 about, you know, problems with certain mechanisms</p> <p>19 that are out there.</p> <p>20 Q. You would not agree that Dr. Trabert has a</p> <p>21 problem with inflammatory mechanism for ovarian</p> <p>22 cancer, would you?</p> <p>23 A. I don't know that I'm saying that per se,</p> <p>24 but I believe she's published with Dr. Wentzensen,</p> <p>25 also from NCI, and they've talked about some</p>

<p style="text-align: right;">Page 94</p> <p>1 limitations of the talc literature and that</p> <p>2 causality has not been proven by various mechanisms.</p> <p>3 Q. Would you agree that Dr. Trabert is probably</p> <p>4 the most well-published author promoting the role of</p> <p>5 inflammation in ovarian cancer, or do you not know?</p> <p>6 MR. JAMES: Just objection to form.</p> <p>7 A. I know she's published quite a bit in the</p> <p>8 area.</p> <p>9 Q. We probably have some articles to come where</p> <p>10 she's made that statement.</p> <p>11 And then it goes on to discuss obesity and</p> <p>12 the inflammatory process and then it says --</p> <p>13 A. Are we in the discussion still?</p> <p>14 Q. We're just in what we read again because the</p> <p>15 counsel sitting beside you thought I misrepresented</p> <p>16 the paper and I want to make sure I did not</p> <p>17 misrepresent the paper.</p> <p>18 And then it discusses: This would also be</p> <p>19 in line with our observation of a higher risk</p> <p>20 associated with genital talc use for women with</p> <p>21 endometriosis since inflammation has been proposed</p> <p>22 as a possible biologic mechanism for talc's</p> <p>23 association with ovarian cancer.</p> <p>24 Did I misrepresent what the paper states,</p> <p>25 that's what I'm asking?</p>	<p style="text-align: right;">Page 96</p> <p>1 should be viewed with caution at another time, that</p> <p>2 would be fine.</p> <p>3 MR. JAMES: Objection to the comment.</p> <p>4 And you're allowed to always answer the</p> <p>5 questions as you feel appropriate.</p> <p>6 Q. Then I can object to them being</p> <p>7 nonresponsive as well.</p> <p>8 So the Phung paper does not influence your</p> <p>9 opinion at all that there is no plausible mechanism</p> <p>10 for talcum powder causing ovarian cancer?</p> <p>11 MR. JAMES: Objection to the form. The</p> <p>12 paper, and the basis of my objection, says that</p> <p>13 it has been proposed as a possible biological</p> <p>14 mechanism and that's what prompted the prior</p> <p>15 objection because you omitted --</p> <p>16 MS. THOMPSON: I don't need the speaking</p> <p>17 objections. My question --</p> <p>18 MR. JAMES: -- because you omitted that</p> <p>19 language in your question to Dr. Permuth. "Has</p> <p>20 been proposed" is in the sentence. You omitted</p> <p>21 it in your first part of your question.</p> <p>22 MS. THOMPSON: In this question?</p> <p>23 MR. JAMES: No. Earlier in the form</p> <p>24 objection that I made, you omitted that phrasing.</p> <p>25 BY MS. THOMPSON:</p>
<p style="text-align: right;">Page 95</p> <p>1 A. That's what it stated and I think this is</p> <p>2 where you had brought up interpreting findings with</p> <p>3 caution, and this is an example of where I do that</p> <p>4 in a paragraph talking about the limitations of this</p> <p>5 study as we know it.</p> <p>6 Q. Do you think you want to interpret caution</p> <p>7 because it disagrees with your opinions?</p> <p>8 A. Not at all.</p> <p>9 MR. JAMES: Objection to the form, please.</p> <p>10 Q. Do you agree that there is a statistically</p> <p>11 increased risk, in this paper, of ovarian cancer</p> <p>12 with genital talc use with and without</p> <p>13 endometriosis, do you agree that that is the finding</p> <p>14 of this paper?</p> <p>15 A. They do have that.</p> <p>16 Q. All right.</p> <p>17 A. However, interactions were not statistically</p> <p>18 significant, and there is some other methodologic</p> <p>19 issues that should be considered and, therefore,</p> <p>20 that is why I said there caution should be taken</p> <p>21 upon interpretation of results.</p> <p>22 Q. And I'll disagree with the second part of</p> <p>23 that answer because I only asked if the findings</p> <p>24 were of a statistically significant increased risk.</p> <p>25 If you want to come back and talk about why it</p>	<p style="text-align: right;">Page 97</p> <p>1 Q. Does the Phung paper influence your opinion</p> <p>2 that there's no possible mechanism for talcum powder</p> <p>3 causing ovarian cancer?</p> <p>4 A. It does not influence my opinion.</p> <p>5 Q. Okay.</p> <p>6 A. It's as stated in my report.</p> <p>7 Q. And this paper does list talc as a</p> <p>8 well-recognized or well-established risk factor for</p> <p>9 ovarian cancer, correct?</p> <p>10 MR. JAMES: Objection; asked and answered</p> <p>11 five times.</p> <p>12 Q. All right. Are you aware of any other</p> <p>13 papers that list talc as a well-established risk</p> <p>14 factor for ovarian cancer?</p> <p>15 A. Not that I can name offhand.</p> <p>16 Q. But there are, would you agree?</p> <p>17 MR. JAMES: Just objection to form.</p> <p>18 Q. Are there other papers that you're aware of?</p> <p>19 A. That --</p> <p>20 Q. List talcum powder as a well-established</p> <p>21 risk factor for ovarian cancer?</p> <p>22 A. The term "well-established," quite possibly.</p> <p>23 Q. Well, let's just look at a few.</p> <p>24 MS. THOMPSON: Exhibit 12.</p> <p>25 (Permuth Exhibit 12 was marked for identification.)</p>

<p style="text-align: right;">Page 98</p> <p>1 THE WITNESS: Thank you.</p> <p>2 MR. JAMES: What are we looking at,</p> <p>3 Margaret, please, unless you have a copy for me?</p> <p>4 MS. THOMPSON: I have it right in front of</p> <p>5 you.</p> <p>6 MR. JAMES: Oh, that's the first one you've</p> <p>7 given me in a while. Thank you.</p> <p>8 MS. THOMPSON: I'm doing my best.</p> <p>9 BY MS. THOMPSON:</p> <p>10 Q. This was a report of a conference. It's</p> <p>11 2007 and it's published in Gynecologic Oncology, and</p> <p>12 you do know that that's the publication of the</p> <p>13 Society for Gynecological Oncologists, correct?</p> <p>14 A. I do.</p> <p>15 Q. And the paper itself is talking about an</p> <p>16 algorithm that might be developed to determine women</p> <p>17 at risk for ovarian cancer, would you agree with</p> <p>18 that?</p> <p>19 A. I'd have to read the paper. I've never seen</p> <p>20 this.</p> <p>21 Q. Okay. Take a minute and look at it, or I</p> <p>22 can ask the questions and then you can -- I'm really</p> <p>23 only going to ask you about whether the paper lists</p> <p>24 risk factors for ovarian cancer, so --</p> <p>25 A. So I've just started skimming the abstract.</p>	<p style="text-align: right;">Page 100</p> <p>1 MR. JAMES: Just objection to the form.</p> <p>2 A. They mention it. My main concern is we're</p> <p>3 talking something that's really outdated, 2007.</p> <p>4 Their only citation for talc is based on a 2005</p> <p>5 publication that's not even primary data. So I'm</p> <p>6 unclear what else --</p> <p>7 Q. These attendees include Dr. Berchuck,</p> <p>8 correct?</p> <p>9 A. I'm trying to look at the authors at the</p> <p>10 back.</p> <p>11 Q. At the end, acknowledgments. Dr. Cramer,</p> <p>12 Dr. Ness, Frances Balkwill. Do you know Frances</p> <p>13 Balkwill, of her?</p> <p>14 A. I don't.</p> <p>15 Q. And Jeffrey Boyd. Do you know Jeffrey Boyd?</p> <p>16 A. I don't know him.</p> <p>17 Q. Do you know that he's a defense expert?</p> <p>18 A. I have heard the name, now that you say</p> <p>19 that, but I don't know him personally.</p> <p>20 Q. Let's look at the Vitonis paper. This is</p> <p>21 2011, a little more recent.</p> <p>22 MS. THOMPSON: Exhibit 13.</p> <p>23 (Permuth Exhibit 13 was marked for identification.)</p> <p>24 MR. JAMES: Thank you.</p> <p>25 THE WITNESS: Thank you.</p>
<p style="text-align: right;">Page 99</p> <p>1 I do see they have a section on identifying women at</p> <p>2 risk. In terms of risk factors, I see you're</p> <p>3 probably talking about the first column on the right</p> <p>4 page.</p> <p>5 Q. Yes, and it says: For their algorithm of</p> <p>6 determining whether women were at increased risk,</p> <p>7 they used --</p> <p>8 And they, in fairness, they excluded women</p> <p>9 who had a genetic history, so they were looking at</p> <p>10 other risk factors besides genetic history because</p> <p>11 the intent was to see if there was anyone else that</p> <p>12 would benefit from preventative surgical treatment.</p> <p>13 I'll just represent that to you, but if you would</p> <p>14 want to look at that, that's fine, too.</p> <p>15 But the algorithm using the seven risk</p> <p>16 factors are: Age over 45; long-term genital talc</p> <p>17 use -- well, they do say family history, I'm</p> <p>18 sorry -- Jewish ethnicity, or contraceptive use, no</p> <p>19 live births, no breast feeding, no tubal ligation,</p> <p>20 and they determined that if you had more than one or</p> <p>21 if you had six to seven of these, your risk was</p> <p>22 7.59.</p> <p>23 But you do agree that this paper at least</p> <p>24 included talcum powder as a known risk factor,</p> <p>25 correct?</p>	<p style="text-align: right;">Page 101</p> <p>1 BY MS. THOMPSON:</p> <p>2 Q. And this article also is looking at a risk</p> <p>3 factor score, and in the results and the abstract,</p> <p>4 summing eight conditions found to be associated with</p> <p>5 ovarian cancer, Jewish ethnicity, less than one year</p> <p>6 of oral contraceptive, nulliparity, no breast</p> <p>7 feeding, no tubal ligation, painful periods or</p> <p>8 endometriosis, polycystic ovary or obesity, talc</p> <p>9 use.</p> <p>10 You disagree with the inclusion of talc use</p> <p>11 in the risk factor list, correct?</p> <p>12 A. I don't believe talc is a risk factor for</p> <p>13 ovarian cancer and I'm not --</p> <p>14 Q. Do you disagree --</p> <p>15 A. Go ahead.</p> <p>16 Q. Do you disagree with any of the other risk</p> <p>17 factors that are listed, the other seven?</p> <p>18 A. No, I don't have a strong disagreement with</p> <p>19 the others.</p> <p>20 Q. Do you have any disagreement?</p> <p>21 A. No.</p> <p>22 Q. And then going to Page -- this was published</p> <p>23 in the Green Journal, the Journal of the American</p> <p>24 College of Obstetrician & Gynecologists, correct?</p> <p>25 A. Yeah.</p>

<p style="text-align: right;">Page 102</p> <p>1 Q. Going to Page 1048, in the first full</p> <p>2 paragraph, about halfway down it says: These risk</p> <p>3 factors -- referring to the eight -- are concordant</p> <p>4 with published epidemiologic data --</p> <p>5 A. I'm trying to find where you're at. I'm on</p> <p>6 Page 1048.</p> <p>7 Q. Okay. The beginning of the paragraph is "In</p> <p>8 this article..."</p> <p>9 A. Got it.</p> <p>10 Q. "...we derive a simple score..."</p> <p>11 A. Yes.</p> <p>12 Q. And then "These risk factors," do you see</p> <p>13 the sentence starting with "these risk factors"?</p> <p>14 A. Yes.</p> <p>15 Q. "...are concordant with published</p> <p>16 epidemiologic data related to reproductive factors,</p> <p>17 use of talc, tubal ligation, and endometriosis, and</p> <p>18 polycystic ovarian syndrome or obesity."</p> <p>19 A. Yes.</p> <p>20 Q. But you disagree that the talc use is</p> <p>21 concordant with published epidemiologic data?</p> <p>22 A. I just -- you know, Dr. Cramer has long been</p> <p>23 investigating talc use, as his team, his mentees,</p> <p>24 who we're seeing on the article, he's citing his own</p> <p>25 papers and that of his group, so I'm not surprised</p>	<p style="text-align: right;">Page 104</p> <p>1 MR. JAMES: Thank you.</p> <p>2 THE WITNESS: Thank you.</p> <p>3 BY MS. THOMPSON:</p> <p>4 Q. You'll agree that Wu published several</p> <p>5 papers?</p> <p>6 A. She has.</p> <p>7 Q. In the, let's say, late 2015 to 2020 time</p> <p>8 frame?</p> <p>9 A. Yes.</p> <p>10 Q. And this is just one of them, and she lists</p> <p>11 the six well-accepted risk factors. This one is</p> <p>12 actually comparing Hispanic, White, non-Hispanic</p> <p>13 Whites, African-American, and Hispanic, and I'm just</p> <p>14 referring you to the listing of talc as a</p> <p>15 well-accepted risk factor. Do you agree that she</p> <p>16 lists talc?</p> <p>17 MR. JAMES: Margaret, could you point us to</p> <p>18 where that language is?</p> <p>19 MS. THOMPSON: Here we go. A number of risk</p> <p>20 factors are in the introduction. It's somewhere.</p> <p>21 If not, I have the wrong Wu paper.</p> <p>22 BY MS. THOMPSON:</p> <p>23 Q. Okay. Table 4 and Table 2, the risk factors</p> <p>24 are nulliparity, oral contraceptive less than one</p> <p>25 year, no tubal ligation, endometriosis, family</p>
<p style="text-align: right;">Page 103</p> <p>1 to see that at all.</p> <p>2 Q. Was this paper litigation driven?</p> <p>3 MR. JAMES: Just object to the form and</p> <p>4 calls for speculation.</p> <p>5 A. I'm not sure.</p> <p>6 Q. Published in 2011. Was Dr. Cramer a</p> <p>7 plaintiff expert in litigation?</p> <p>8 MR. JAMES: Object to form; calls for</p> <p>9 speculation.</p> <p>10 A. It would seem chronologically before that</p> <p>11 time.</p> <p>12 Q. Are you aware when the litigation began with</p> <p>13 talcum powder and Johnson baby powder?</p> <p>14 MR. JAMES: You might be closer than you</p> <p>15 think. Object to form; calls for speculation.</p> <p>16 A. I'm not sure of the exact year.</p> <p>17 Q. Oh, we can go back way far but not with</p> <p>18 Dr. Cramer.</p> <p>19 Let's look at one more paper in this -- with</p> <p>20 well-established risk factors and then we'll move</p> <p>21 on. There are likely others, but I'm giving you</p> <p>22 some examples.</p> <p>23 MS. THOMPSON: We'll mark a Wu paper, this</p> <p>24 one is 2015, Exhibit 14.</p> <p>25 (Permuth Exhibit 14 was marked for identification.)</p>	<p style="text-align: right;">Page 105</p> <p>1 history of ovarian cancer, and talc use greater than</p> <p>2 one year.</p> <p>3 Do you agree that talc use is one of the</p> <p>4 risk factors that Wu considers here?</p> <p>5 A. Yeah, I see it in the table but it's</p> <p>6 noteworthy that it was not mentioned in the</p> <p>7 introduction.</p> <p>8 Q. And the summary is: Results from these</p> <p>9 population based case-control studies suggest that</p> <p>10 the six well-established risk factors for iEOC</p> <p>11 accounted for about 60 percent of ovarian cancer</p> <p>12 risk in non-Hispanic Whites, Hispanics, and</p> <p>13 African-American, and you agree with that conclusion</p> <p>14 from the Wu paper?</p> <p>15 A. I don't see where you're reading that.</p> <p>16 Q. The summary at the end, Page 8.</p> <p>17 A. I'd have to read the paper to say what I</p> <p>18 think about the conclusions.</p> <p>19 Q. Well, we know that you don't think that talc</p> <p>20 use is one of the six well-established risk factors?</p> <p>21 A. Correct, I don't.</p> <p>22 Q. You discussed the Hurwitz paper in your</p> <p>23 report, correct?</p> <p>24 A. There were several, yes.</p> <p>25 Q. I'm going to use the most recent one.</p>

<p style="text-align: right;">Page 106</p> <p>1 A. Okay.</p> <p>2 Q. Published in 2022.</p> <p>3 (Permuth Exhibit 15 was marked for identification.)</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. You discuss it on Page 38 of your report,</p> <p>6 Dr. Permuth, and this is another paper from OCAC,</p> <p>7 correct?</p> <p>8 A. Correct.</p> <p>9 Q. Are you an author on this paper?</p> <p>10 A. I am not.</p> <p>11 Q. Were you asked to be an author on this</p> <p>12 paper?</p> <p>13 A. No.</p> <p>14 Q. And we see names here that have published</p> <p>15 consistently on talcum powder, correct?</p> <p>16 A. Yes.</p> <p>17 Q. Holly Harris, Dr. Schildkraut,</p> <p>18 Dr. Wentzensen. Dr. Berchuck has not published on</p> <p>19 talc, to my knowledge. Dr. O'Brien, Dr. Wu,</p> <p>20 Dr. Tworoger and Dr. Trabert, who was the doctor at</p> <p>21 NIH that you mentioned earlier. I don't want to</p> <p>22 mischaracterize your testimony but I think you</p> <p>23 believe that she had some reservations about</p> <p>24 inflammation and ovarian cancer. Am I stating your</p> <p>25 testimony earlier?</p>	<p style="text-align: right;">Page 108</p> <p>1 likely plays a key role in ovarian carcinogenesis,</p> <p>2 correct?</p> <p>3 A. They do state that.</p> <p>4 Q. And when you talk about Hurwitz on Page 38</p> <p>5 of your report, you conclude that, taken together,</p> <p>6 data remain inconclusive regarding the association</p> <p>7 between aspirin use and ovarian cancer risk.</p> <p>8 That's not what the OCAC authors concluded,</p> <p>9 is it?</p> <p>10 A. There I was referring to the corpus of data</p> <p>11 that's out there about aspirin and NSAIDs and</p> <p>12 ovarian cancer, so that's meant to be a concluding</p> <p>13 paragraph.</p> <p>14 My citation, like the paper I talk about</p> <p>15 right before that sentence, is actually a different</p> <p>16 one than this article that talks about polygenic</p> <p>17 risk scores, but at the end of the day, I think data</p> <p>18 remain inconclusive.</p> <p>19 Q. Well, first of all, your statement doesn't</p> <p>20 say NSAID use and aspirin, it says --</p> <p>21 A. Aspirin.</p> <p>22 Q. -- aspirin, correct?</p> <p>23 A. Uh-huh.</p> <p>24 Q. So that was a misstatement of the sentence</p> <p>25 that I read. You state taken together --</p>
<p style="text-align: right;">Page 107</p> <p>1 MR. JAMES: Just object --</p> <p>2 Q. If not, state it how you would like to.</p> <p>3 MR. JAMES: Just object to form.</p> <p>4 A. I believe she's talked about limitations of</p> <p>5 what we know about causation.</p> <p>6 Q. Okay. And this paper, in its conclusion:</p> <p>7 The largest to-date on aspirin use --</p> <p>8 Is aspirin use an anti-inflammatory?</p> <p>9 A. Yes.</p> <p>10 Q. -- provides evidence that frequent aspirin</p> <p>11 use is associated with lower cancer risk regardless</p> <p>12 of the presence of most other ovarian cancer risk</p> <p>13 factors.</p> <p>14 And in the introduction also the authors</p> <p>15 state: Chronic inflammation likely plays a key role</p> <p>16 in ovarian carcinogenesis as factors associated with</p> <p>17 epithelial disruption from ovulation,</p> <p>18 inflammation-related exposures such as endometriosis</p> <p>19 and pelvic inflammatory disease, and circulating</p> <p>20 markers of inflammation are associated with ovarian</p> <p>21 cancer.</p> <p>22 These authors do not mention talc, do they,</p> <p>23 in that sentence that I just read?</p> <p>24 A. They do not.</p> <p>25 Q. But they do say that chronic inflammation</p>	<p style="text-align: right;">Page 109</p> <p>1 MR. JAMES: Objection to -- objection to the</p> <p>2 form.</p> <p>3 Q. Taken together, data remain inconclusive</p> <p>4 regarding the association between aspirin and</p> <p>5 ovarian cancer risk.</p> <p>6 And yet this paper, published by OCAC --</p> <p>7 well-regarded scientists, correct?</p> <p>8 MR. JAMES: Just objection to form.</p> <p>9 Q. Well-regarded scientists in OCAC?</p> <p>10 A. Yes.</p> <p>11 Q. Published in the Journal of Clinical</p> <p>12 Oncology -- are you familiar with that journal?</p> <p>13 A. I am.</p> <p>14 Q. Are you a member of the Association of</p> <p>15 Clinical Oncology?</p> <p>16 A. ASCO? Yes.</p> <p>17 Q. And the authors say this is the largest</p> <p>18 study, correct?</p> <p>19 A. (Nodding head.)</p> <p>20 Q. And they say it provides evidence,</p> <p>21 regardless of most other cancer risk factors, and</p> <p>22 chronic inflammation likely plays a key role, but</p> <p>23 the data on aspirin is still inconclusive, in your</p> <p>24 opinion, correct?</p> <p>25 A. In my opinion, further work needs to be done</p>

<p style="text-align: right;">Page 110</p> <p>1 and that's the last statement I have in the</p> <p>2 paragraph, that work should continue to explore the</p> <p>3 role of aspirin for ovarian cancer prevention.</p> <p>4 Q. Doesn't almost every article ever published</p> <p>5 say additional work needs to be done? You don't</p> <p>6 need to answer that question.</p> <p>7 And in this paper also, there is -- let's...</p> <p>8 If you will go to Page 53 of your report,</p> <p>9 this begins with the Overview of Methods and</p> <p>10 Analysis of Talc and Ovarian Cancer.</p> <p>11 A. Okay.</p> <p>12 Q. And you start that paragraph with:</p> <p>13 Presented in the remainder of this report is my</p> <p>14 expert opinion on claims alleging that talc-based</p> <p>15 products manufactured by a subsidiary of Johnson &</p> <p>16 Johnson have caused women to develop ovarian cancer.</p> <p>17 Explain that sentence to me.</p> <p>18 MR. JAMES: Where are you again?</p> <p>19 MS. THOMPSON: Page 53, Overview of Methods</p> <p>20 and Analysis: Presented in the remainder of this</p> <p>21 report is my expert opinion on claims alleging</p> <p>22 that talc-based products manufactured by a</p> <p>23 subsidiary of Johnson & Johnson have caused women</p> <p>24 to develop ovarian cancer.</p> <p>25 A. So in the paragraphs to follow or the</p>	<p style="text-align: right;">Page 112</p> <p>1 A. I don't recall. That's a statement I wrote</p> <p>2 years ago.</p> <p>3 Q. Who does Scott James represent --</p> <p>4 MR. JAMES: Just objection --</p> <p>5 Q. -- in this litigation?</p> <p>6 MR. JAMES: Objection to form.</p> <p>7 Q. You can answer.</p> <p>8 A. We're -- you know, the defense is Johnson &</p> <p>9 Johnson.</p> <p>10 Q. Okay. Who contacted you to be an expert?</p> <p>11 MR. JAMES: Objection; asked and answered</p> <p>12 this morning.</p> <p>13 MS. THOMPSON: I don't know that she said</p> <p>14 Johnson & Johnson.</p> <p>15 A. Johnson & Johnson didn't contact me.</p> <p>16 MR. JAMES: Hold on. Objection to that</p> <p>17 comment.</p> <p>18 Q. A lawyer representing Johnson & Johnson or</p> <p>19 was it a lawyer representing the subsidiary that you</p> <p>20 believe manufactured talcum powder products?</p> <p>21 MR. JAMES: Just objection to form.</p> <p>22 A. It was a lawyer.</p> <p>23 Q. Okay. So you don't have any evidence or</p> <p>24 knowledge of a subsidiary being responsible for the</p> <p>25 manufacture of Johnson & Johnson --</p>
<p style="text-align: right;">Page 111</p> <p>1 sections to follow I'll be talking about claims</p> <p>2 alleging that talc causes ovarian cancer.</p> <p>3 Q. Okay. I'm particularly interested in the</p> <p>4 manufactured by a subsidiary of Johnson & Johnson.</p> <p>5 What subsidiary is that?</p> <p>6 MR. JAMES: Objection to form.</p> <p>7 Q. Do you know the name of the subsidiary of</p> <p>8 Johnson & Johnson that manufactured talc-based</p> <p>9 products?</p> <p>10 A. I don't offhand.</p> <p>11 Q. And is it your opinion that it's a</p> <p>12 subsidiary and not Johnson & Johnson that</p> <p>13 manufactures talc-based products?</p> <p>14 MR. JAMES: Objection to form.</p> <p>15 A. I don't recall.</p> <p>16 Q. Who told you that it's a subsidiary of</p> <p>17 Johnson & Johnson that manufactured talc-based</p> <p>18 products?</p> <p>19 MR. JAMES: Just objection to form.</p> <p>20 A. I don't know that anyone told me that per</p> <p>21 se.</p> <p>22 Q. Who does -- why did you include it in your</p> <p>23 report?</p> <p>24 MR. JAMES: Just objection to form and asked</p> <p>25 and answered.</p>	<p style="text-align: right;">Page 113</p> <p>1 A. I don't recall.</p> <p>2 Q. You don't recall or you don't have evidence?</p> <p>3 MR. JAMES: Objection to form. Objection;</p> <p>4 asked and answered.</p> <p>5 MS. THOMPSON: That's a very legitimate</p> <p>6 question, and I don't believe it's been answered,</p> <p>7 why she included that in her report, but we can</p> <p>8 move on.</p> <p>9 MR. JAMES: Objection to the editorializing</p> <p>10 that has been going on all morning, but go</p> <p>11 forward.</p> <p>12 MS. THOMPSON: From you.</p> <p>13 MR. JAMES: Uh-huh.</p> <p>14 MS. THOMPSON: Yes.</p> <p>15 BY MS. THOMPSON:</p> <p>16 Q. Let's go to Page 57.</p> <p>17 A. Okay.</p> <p>18 Q. And under Talcum Powder and Ovarian Cancer,</p> <p>19 A Comprehensive Review of the Literature, you did</p> <p>20 include a comprehensive of the literature in your</p> <p>21 report, didn't you?</p> <p>22 A. Yes.</p> <p>23 Q. I would agree with that. Do you believe</p> <p>24 it's an unbiased review of the literature?</p> <p>25 A. Yes.</p>

<p style="text-align: right;">Page 114</p> <p>1 MR. JAMES: Objection; asked and answered.</p> <p>2 Q. And you state here: While some</p> <p>3 epidemiologic studies summarized below have reported</p> <p>4 a positive association between talc and ovarian</p> <p>5 cancer risk, other, more robust studies have not.</p> <p>6 What studies are you referring to in the</p> <p>7 more robust studies have not?</p> <p>8 A. I'm referring to the prospective cohort</p> <p>9 studies.</p> <p>10 Q. Which ones?</p> <p>11 A. Gertig, Gates, O'Brien, Gonzalez --</p> <p>12 Q. O'Brien, Gertig?</p> <p>13 A. Uh-huh.</p> <p>14 Q. O'Brien 2020 and 2024?</p> <p>15 A. 2020.</p> <p>16 Q. So you don't consider that O'Brien 2024</p> <p>17 robust?</p> <p>18 A. This latest paper?</p> <p>19 Q. Yes.</p> <p>20 A. Interested in the talking about that; I</p> <p>21 think a lot of it is hypothetical in nature and</p> <p>22 there are flaws.</p> <p>23 Q. And would that be because it disagrees with</p> <p>24 your opinions?</p> <p>25 MR. JAMES: Objection to the form, and</p>	<p style="text-align: right;">Page 116</p> <p>1 Objection to that commentary and that's how</p> <p>2 you're approaching this entire deposition, and</p> <p>3 it's very unprofessional.</p> <p>4 MS. THOMPSON: Okay.</p> <p>5 MR. JAMES: I've never seen a lawyer do this</p> <p>6 in this litigation.</p> <p>7 MS. THOMPSON: Oh, come on.</p> <p>8 BY MS. THOMPSON:</p> <p>9 Q. On Page 79 you state: Although prospective</p> <p>10 studies have numerous advantages, there are also</p> <p>11 limitations that warrant consideration in evaluating</p> <p>12 these diseases [sic].</p> <p>13 What are the limitations of cohort studies?</p> <p>14 A. I'm sorry. Could you --</p> <p>15 Q. Page 79, the very last sentence.</p> <p>16 A. Well, if we turn the page, I likely talk</p> <p>17 about loss to follow-up.</p> <p>18 Q. Show me where that is.</p> <p>19 A. I'm turning now to the top of 80, where I</p> <p>20 say: First, there is potential for subject losses</p> <p>21 compared to other types of analytical studies; there</p> <p>22 is a need to make sure those lost are not</p> <p>23 systematically different from those in the original</p> <p>24 cohort in terms of exposure and outcome status.</p> <p>25 Q. Can you tell me where you are?</p>
<p style="text-align: right;">Page 115</p> <p>1 objection; argumentative.</p> <p>2 A. Nothing to do with opinions, it's based on</p> <p>3 the science.</p> <p>4 Q. Okay. But O'Brien 2020 then, and Gertig,</p> <p>5 you do feel are robust, correct?</p> <p>6 A. Yes, especially O'Brien's earlier paper.</p> <p>7 Q. Okay. We'll be --</p> <p>8 A. The pooled analysis.</p> <p>9 Q. We'll be looking at those shortly.</p> <p>10 And you do know that Gertig found a</p> <p>11 statistically significant increased risk of serous</p> <p>12 ovarian cancer, correct?</p> <p>13 A. I am aware of that, and that was attenuated</p> <p>14 and no longer there when restricting to medically</p> <p>15 confirmed cases.</p> <p>16 Q. Is that because it disagrees with your</p> <p>17 opinions?</p> <p>18 A. Nope.</p> <p>19 MR. JAMES: Objection to that continued</p> <p>20 unnecessary argumentative editorializing. Is</p> <p>21 that going to continue all day?</p> <p>22 MS. THOMPSON: It might because I see a lot</p> <p>23 of bias in this report and I'm going to</p> <p>24 attempt -- I'm going to bring it out.</p> <p>25 MR. JAMES: Oh, wow, unbelievable.</p>	<p style="text-align: right;">Page 117</p> <p>1 A. The top of Page 80. It's the sentence after</p> <p>2 what you had read.</p> <p>3 Q. All right.</p> <p>4 A. Second, there can be exposure</p> <p>5 misclassification due to changes in exposure status</p> <p>6 during follow-up; reassessment of exposures that can</p> <p>7 be modified is important in prospective cohort</p> <p>8 studies. Nonetheless, it's noteworthy that talc use</p> <p>9 is likely to be habitual such that assessment at</p> <p>10 baseline is likely to be typical or characteristic</p> <p>11 of that individual and unlikely to change over time.</p> <p>12 In fact, Cramer, et al., reported year-round use to</p> <p>13 be the most common pattern as opposed to seasonal or</p> <p>14 irregular use. And although these prospective</p> <p>15 studies may be criticized for not ascertaining the</p> <p>16 age of first use of talc, this information was only</p> <p>17 ascertained in a few case-control studies.</p> <p>18 Q. Is power a concern with cohort studies on a</p> <p>19 relatively rare cancer?</p> <p>20 A. One could say that but power calculations</p> <p>21 have been done by several of the authors, I'm mostly</p> <p>22 thinking of Berge and his meta-analysis, and it does</p> <p>23 seem that the prospective cohorts are well powered</p> <p>24 to identify effects if they are there.</p> <p>25 Q. Okay. We're going to talk about that a</p>

<p style="text-align: right;">Page 118</p> <p>1 little bit more later.</p> <p>2 On Page 83, you discuss the meta-analysis by</p> <p>3 Huncharek in 2003.</p> <p>4 A. Yes.</p> <p>5 Q. Is there a reason you particularly chose</p> <p>6 that meta-analysis?</p> <p>7 A. Yes. This is one that takes a look at</p> <p>8 effect estimates when talc was dusted on the</p> <p>9 diaphragms of women, and I felt it was really</p> <p>10 important to look at talc and where it's applied,</p> <p>11 and this ultimately showed that when talc was</p> <p>12 applied to diaphragms, there wasn't -- was not an</p> <p>13 increased risk for ovarian cancer, there was no</p> <p>14 association, and the diaphragms are even closer to</p> <p>15 the ovaries than talc put on the outside of the</p> <p>16 body. So I find that very concerning and perplexing</p> <p>17 and not supportive of causation.</p> <p>18 Q. Is it your contention that talcum powder on</p> <p>19 a diaphragm would result in greater exposure than</p> <p>20 daily perineal dusting for decades?</p> <p>21 MR. JAMES: Just object to form.</p> <p>22 A. I'm talking about where the talc is applied.</p> <p>23 So you just brought up I think frequency, I'm</p> <p>24 forgetting your question, but I'm talking about</p> <p>25 administration or putting talc on the diaphragm,</p>	<p style="text-align: right;">Page 120</p> <p>1 MR. JAMES: Objection.</p> <p>2 Q. Or have you had -- sorry. I'll take that</p> <p>3 back.</p> <p>4 Have you talked with women or counseled</p> <p>5 women on diaphragm use?</p> <p>6 A. That would not be in my purview. I'm not a</p> <p>7 reproductive specialist.</p> <p>8 Q. Would you defer to a gynecologist or a</p> <p>9 gynecologic oncologist for that opinion?</p> <p>10 A. For that discussion? Yes.</p> <p>11 Q. Yes. And so you would not know that most</p> <p>12 women rinse off the diaphragm before they insert it,</p> <p>13 do you?</p> <p>14 MR. JAMES: Just objection to the form and</p> <p>15 foundation.</p> <p>16 Q. And I don't know is a perfectly acceptable</p> <p>17 answer, if that's the case.</p> <p>18 A. I'm not sure.</p> <p>19 Q. Okay. And are you aware that the Huncharek</p> <p>20 article was funded by Johnson & Johnson?</p> <p>21 A. I don't recall that but that may be true.</p> <p>22 Q. Well, you might not be because it wasn't</p> <p>23 disclosed in the article.</p> <p>24 MR. JAMES: Objection to the form.</p> <p>25 Q. Well, is that -- okay. I don't have it with</p>
<p style="text-align: right;">Page 119</p> <p>1 which is higher up in the reproductive tract, closer</p> <p>2 to the ovaries. One might surmise that ovarian</p> <p>3 cancer risk would be higher there.</p> <p>4 Q. Do you have any evidence to that?</p> <p>5 A. Evidence in terms of epidemiologic data</p> <p>6 actually shows that there's no risk and, in fact, I</p> <p>7 think even protective associations have been seen,</p> <p>8 which is perplexing and not supportive of causation</p> <p>9 with regard to talc.</p> <p>10 Q. I'll ask you some questions. Do women use</p> <p>11 diaphragm daily, typically?</p> <p>12 A. It depends on the woman.</p> <p>13 Q. Would a woman ever use a diaphragm daily for</p> <p>14 50 years?</p> <p>15 A. That would be doubtful.</p> <p>16 Q. Okay. And the recommendation was that</p> <p>17 talcum powder could be applied to the diaphragm for</p> <p>18 storage, correct? Are you familiar with the</p> <p>19 instructions for use of a diaphragm?</p> <p>20 A. Yes.</p> <p>21 Q. Are you aware that the recommendation was</p> <p>22 to -- that you could dust the diaphragm for storage?</p> <p>23 MR. JAMES: Just object to form.</p> <p>24 A. Sure.</p> <p>25 Q. Have you ever used a diaphragm?</p>	<p style="text-align: right;">Page 121</p> <p>1 me but do you know if the Huncharek article</p> <p>2 disclosed Johnson & Johnson as --</p> <p>3 A. I don't recall, as I said.</p> <p>4 MR. JAMES: Objection; asked and answered.</p> <p>5 Q. And you know that in the 1980s -- and also,</p> <p>6 do you know the impact of spermicidal jelly on a</p> <p>7 diaphragm that has been rinsed and then applied into</p> <p>8 the vagina?</p> <p>9 A. Again, I'm unclear on that. I'm not a</p> <p>10 reproductive specialist.</p> <p>11 Q. Okay. And do you know that the instructions</p> <p>12 to even dust a diaphragm for storage was removed in</p> <p>13 the 1990s?</p> <p>14 A. I don't know that.</p> <p>15 Q. Do you know what the concern was in the</p> <p>16 1990s?</p> <p>17 A. I don't know.</p> <p>18 Q. Do you know that condoms were also dusted</p> <p>19 with talcum powder in the 1990s?</p> <p>20 MR. JAMES: Just objection; foundation.</p> <p>21 A. I don't know those facts.</p> <p>22 Q. I'm just asking whether you know whether</p> <p>23 condoms had talcum powder in the '80s and '90s?</p> <p>24 A. I do know that some studies report on</p> <p>25 dusting of condoms.</p>

<p style="text-align: right;">Page 122</p> <p>1 Q. And do you know that the dust -- the talcum 2 powder application to condoms was removed in the 3 1990s as well?</p> <p>4 MR. JAMES: Just objection to foundation.</p> <p>5 A. I didn't know that. All I do know is the 6 epidemiologic data about dusting of condoms or 7 diaphragms, and nothing shows that talc dusting on 8 those modes increases a woman's risk of ovarian 9 cancer.</p> <p>10 Q. What is the study you have for dusting of 11 condoms?</p> <p>12 A. I've seen several. I'd have to look at my 13 report, which I can do.</p> <p>14 Q. Yeah, show me the one in your report that 15 talks about any risk with dusting of condoms.</p> <p>16 A. I haven't seen any that show increased risk.</p> <p>17 Q. Have you seen any that studied it?</p> <p>18 A. Condom dusting with talc has been mentioned. 19 I don't recall which article offhand. I can try to 20 figure that out. It will take me a bit of time.</p> <p>21 Q. Okay. Do you know that talcum powder was 22 removed from condoms because of a concern about 23 ovarian cancer?</p> <p>24 MR. JAMES: Objection to form; foundation.</p> <p>25 MS. THOMPSON: I'm just asking if she knows.</p>	<p style="text-align: right;">Page 124</p> <p>1 with the case-control studies?</p> <p>2 A. Yes.</p> <p>3 Q. How do you explain that there's -- well, let 4 me ask you a question first. Has there ever been an 5 association with talcum powder use and mucinous 6 ovarian cancer?</p> <p>7 A. I don't believe I've seen one of those 8 offhand.</p> <p>9 Q. I haven't either. How do you explain recall 10 bias -- take back I haven't seen it either.</p> <p>11 How do you explain recall bias when there is 12 one particular subtype that has never been found to 13 be associated with ovarian cancer with talcum powder 14 use?</p> <p>15 A. I'd have to think more about mucinous and 16 how prevalent that is, how many cases were looked 17 at, how many were exposed to talc versus the 18 controls. I'd have to look at the studies.</p> <p>19 Q. But if it were the case that mucinous cancer 20 was never found to be associated with talcum powder 21 use, and all the other subtypes were, we'll use this 22 as a hypothetical, can you still explain -- is there 23 any way to explain that recall bias is responsible 24 for the increased risk?</p> <p>25 MR. JAMES: Just objection to the form;</p>
<p style="text-align: right;">Page 123</p> <p>1 A. I don't know that.</p> <p>2 Q. Okay. And do you know that talcum powder 3 was removed from surgical gloves in the 1990s?</p> <p>4 MR. JAMES: Just objection to form --</p> <p>5 A. I don't know that.</p> <p>6 MR. JAMES: -- to form and foundation.</p> <p>7 Thank you.</p> <p>8 MS. THOMPSON: Okay. I'm just asking her if 9 she knows.</p> <p>10 MR. JAMES: Understood. I'm just making my 11 objections.</p> <p>12 BY MS. THOMPSON:</p> <p>13 Q. And do you know that the removal from 14 surgical gloves was because of concern of the 15 effects of inflammation?</p> <p>16 MR. JAMES: Objection to form; foundation.</p> <p>17 A. I don't know that.</p> <p>18 Q. When used in the abdominal cavity, for 19 example, you don't know?</p> <p>20 A. I don't know that.</p> <p>21 Q. Or when used for pelvic exams, do you know?</p> <p>22 MR. JAMES: Objection to form and 23 foundation.</p> <p>24 A. (Shaking head.)</p> <p>25 Q. Is recall bias a concern, in your opinion,</p>	<p style="text-align: right;">Page 125</p> <p>1 improper hypothetical, foundation.</p> <p>2 MS. THOMPSON: Why is the hypothetical 3 improper?</p> <p>4 MR. JAMES: It's totally contrary to 5 everything she said in her report. You're asking 6 her to assume the exact opposite of her opinion.</p> <p>7 MS. THOMPSON: No, she said there is no 8 relationship with mucinous.</p> <p>9 MR. JAMES: You just said to assume there is 10 a relationship with every subtype, that being 11 mucinous, and by the way, she does address 12 mucinous in her report.</p> <p>13 MS. THOMPSON: And that there's no 14 association. We'll move on.</p> <p>15 MR. JAMES: Note my objection.</p> <p>16 MS. THOMPSON: I think it is a proper 17 hypothetical.</p> <p>18 BY MS. THOMPSON:</p> <p>19 Q. I'm going to ask you if there is one subtype 20 that's not associated with talcum powder use and 21 others are, how do you explain recall bias in that 22 situation?</p> <p>23 MR. JAMES: It's the same objections, 24 please.</p> <p>25 MS. THOMPSON: Okay.</p>

<p style="text-align: right;">Page 126</p> <p>1 MR. JAMES: Foundation, improper</p> <p>2 hypothetical, and form.</p> <p>3 A. I think recall bias can happen across the</p> <p>4 board. I think mucinous has been less well studied</p> <p>5 than the others, but if we were to study it more and</p> <p>6 had larger sample sizes, we may be seeing the same</p> <p>7 thing.</p> <p>8 Q. Okay. So that would be your explanation,</p> <p>9 that mucinous is just less well studied?</p> <p>10 A. It's less well studied, it's rarer than some</p> <p>11 of the other subtypes.</p> <p>12 Q. Rarer than clear cell?</p> <p>13 A. I'd have to look at my proportions but...</p> <p>14 Q. Okay. Is there any evidence that you're</p> <p>15 aware of linking talc to other gynecologic cancers</p> <p>16 other than ovarian cancer, epithelial ovarian</p> <p>17 cancer?</p> <p>18 A. There is no strong evidence with uterine or</p> <p>19 cervical and I cite some of those studies.</p> <p>20 Q. Let's go through them, and I want to -- not</p> <p>21 just strong evidence because you --</p> <p>22 A. There is no evidence --</p> <p>23 Q. -- strong with ovarian, so --</p> <p>24 A. Yeah.</p> <p>25 Q. Okay. Is there any evidence at all with</p>	<p style="text-align: right;">Page 128</p> <p>1 Q. Same question: If there is no association</p> <p>2 with other types of cancers, explain how recall bias</p> <p>3 can be totally responsible for the increase in</p> <p>4 ovarian cancer?</p> <p>5 A. Well, I think --</p> <p>6 MR. JAMES: Just object to the form, please.</p> <p>7 A. I think there's a couple issues here, but</p> <p>8 recall bias, if we just concentrate on that, there's</p> <p>9 been so much in the media that's been -- that's</p> <p>10 been -- about this litigation that I think it's</p> <p>11 extra pronounced for ovarian cancer across the</p> <p>12 board, but -- I don't know. I would turn it this</p> <p>13 way, like what you're talking about -- I don't know</p> <p>14 how I want to articulate this. I don't know. I'll</p> <p>15 just -- I'll just end there.</p> <p>16 Q. So do you think women, if they're answering</p> <p>17 a questionnaire and have heard about talcum powder</p> <p>18 causing ovarian cancer, do you think they would know</p> <p>19 if they had mucinous cancer and that wasn't</p> <p>20 associated?</p> <p>21 MR. JAMES: Just object to form.</p> <p>22 A. No, I'm unclear on that.</p> <p>23 Q. Do you think they would know they had a germ</p> <p>24 cell tumor that was not associated?</p> <p>25 A. I think women hear ovarian cancer and talc</p>
<p style="text-align: right;">Page 127</p> <p>1 vulvar cancer.</p> <p>2 A. I have not seen --</p> <p>3 Q. Is there any evidence at all with vaginal</p> <p>4 cancer?</p> <p>5 A. I've not seen that.</p> <p>6 Q. Any evidence at all with cervical cancer?</p> <p>7 A. I have not.</p> <p>8 Q. Any evidence with uterine cancer?</p> <p>9 A. No.</p> <p>10 Q. And you'll agree that O'Brien actually</p> <p>11 looked at cervical and uterine cancer as part of her</p> <p>12 pooled cohort study?</p> <p>13 A. She did.</p> <p>14 Q. And she found no association, correct?</p> <p>15 A. Correct.</p> <p>16 Q. Is there any association with germ cell</p> <p>17 ovarian cancer, to your knowledge?</p> <p>18 A. No.</p> <p>19 Q. And is there any association with bladder</p> <p>20 cancer?</p> <p>21 A. No.</p> <p>22 Q. Any association with rectal cancer?</p> <p>23 A. No.</p> <p>24 Q. Any association with breast cancer?</p> <p>25 A. No.</p>	<p style="text-align: right;">Page 129</p> <p>1 and then that may bias their recall of past</p> <p>2 exposure.</p> <p>3 Q. Do you think they would know they had it?</p> <p>4 A. That's inherent in why prospective cohort</p> <p>5 studies are superior to case-control studies,</p> <p>6 because the exposures happened before the outcome</p> <p>7 develops.</p> <p>8 Q. Speaking of which, in your chart, since you</p> <p>9 mentioned it, you say it usually happens after the</p> <p>10 event. Do you think there are cases in these</p> <p>11 studies where the ovarian cancer was diagnosed and</p> <p>12 then women started using talcum powder afterwards?</p> <p>13 A. I think that can happen.</p> <p>14 Q. Can you point me to any article out of the</p> <p>15 50, 60 articles that states that that has happened?</p> <p>16 MR. JAMES: Objection to form. And I see</p> <p>17 you looking at your report.</p> <p>18 THE WITNESS: Yeah.</p> <p>19 MR. JAMES: You can take time to look at</p> <p>20 your report, if you need to, when you are asked</p> <p>21 if there's a study.</p> <p>22 A. Yes, I believe there is at least one study</p> <p>23 that's commented on that and I need to find it.</p> <p>24 Q. Would it be Huncharek 2003?</p> <p>25 A. I don't recall.</p>

<p style="text-align: right;">Page 130</p> <p>1 Q. Okay. We won't spend time going on with</p> <p>2 that. I don't believe there are any studies that</p> <p>3 actually document that there are cases that are --</p> <p>4 start using talcum powder after they are diagnosed.</p> <p>5 A. Okay. So I was referring to Huncharek in</p> <p>6 2003.</p> <p>7 Q. Who speculated, correct?</p> <p>8 MR. JAMES: Just objection to form.</p> <p>9 A. They suggested that cases may show an</p> <p>10 association secondary to a treatment effect, with</p> <p>11 some women with ovarian cancer undergoing treatment</p> <p>12 which leads to side effects, such as irritation, and</p> <p>13 then they would use talc.</p> <p>14 Q. Are there any patients in his study that he</p> <p>15 actually identified as doing that?</p> <p>16 A. I don't think that was the intent of his</p> <p>17 meta-analysis.</p> <p>18 Q. And --</p> <p>19 A. But I think it's possible that women, you</p> <p>20 know, back in the day, would dust talc to help with</p> <p>21 dryness or skin folding after a diagnosis, so I</p> <p>22 don't think it's too out there at all.</p> <p>23 Q. So your "usually" statement, you accept that</p> <p>24 there are cases in this literature of women who</p> <p>25 start using talcum powder after they are already</p>	<p style="text-align: right;">Page 132</p> <p>1 cancer.</p> <p>2 Is that statement consistent with what we've</p> <p>3 been discussing here regarding mucinous cancer?</p> <p>4 A. That's what I wrote.</p> <p>5 MR. JAMES: What are we, please?</p> <p>6 MS. THOMPSON: Page 87, top paragraph, last</p> <p>7 sentence beginning: Of case-control studies...</p> <p>8 MR. JAMES: Okay. Thank you.</p> <p>9 BY MS. THOMPSON:</p> <p>10 Q. On Page 89, in the paragraph that begins "In</p> <p>11 sum" -- and I assume this is an opinion paragraph,</p> <p>12 correct?</p> <p>13 It reads: In sum, the increased risk</p> <p>14 observed in these meta-analysis is restricted to</p> <p>15 case-control studies and is likely due to bias</p> <p>16 and/or confounding.</p> <p>17 Let's take that in two questions. Is it</p> <p>18 true that the meta-analysis are restricted to</p> <p>19 case-control studies finding positive associations?</p> <p>20 A. The increased risk is seen in the</p> <p>21 case-control studies.</p> <p>22 Q. Okay. But the meta-analysis does include</p> <p>23 cohort studies?</p> <p>24 A. They do.</p> <p>25 Q. And you do agree that at least one of the</p>
<p style="text-align: right;">Page 131</p> <p>1 diagnosed?</p> <p>2 MR. JAMES: Object to the form.</p> <p>3 A. I think that would be rarer. I would never</p> <p>4 say it doesn't happen.</p> <p>5 Q. Do you have any evidence whatsoever?</p> <p>6 A. I don't have any evidence at hand right now.</p> <p>7 Q. All right. Do you think you could find it</p> <p>8 if you looked?</p> <p>9 MR. JAMES: Just object to the form.</p> <p>10 A. I don't know.</p> <p>11 Q. Okay. Actually, on Page 87 you do talk</p> <p>12 about the case-control and histologic subtype, and</p> <p>13 you state in your report, Page 87, last sentence on</p> <p>14 first paragraph: Of case-control studies --</p> <p>15 How many case-control studies are there?</p> <p>16 A. Many.</p> <p>17 Q. Many. We agree on that.</p> <p>18 A. I'm trying to find where you're at.</p> <p>19 Q. Page 87.</p> <p>20 A. Oh, okay. Last sentence, first paragraph.</p> <p>21 Q. Of case-control studies that evaluated more</p> <p>22 than one histologic type, there were a few with</p> <p>23 statistically significant associations between talc</p> <p>24 and serous, endometrioid, or clear cancer, and none</p> <p>25 that identified associations with mucinous ovarian</p>	<p style="text-align: right;">Page 133</p> <p>1 meta-analyses found an increased risk with serous</p> <p>2 cancer, correct, Penninkilampi?</p> <p>3 A. With serous, yes.</p> <p>4 Q. And you agree that the Gertig cohort study</p> <p>5 found an increased risk with serous cancer, correct?</p> <p>6 A. Yes, but the later study with more follow-up</p> <p>7 by Gates did not.</p> <p>8 Q. And that's a topic for another set of</p> <p>9 questions.</p> <p>10 On Page 90, we are -- well, that starts the</p> <p>11 O'Brien papers, so we'll -- new section.</p> <p>12 Do we want to take a break and begin? Do we</p> <p>13 want to take lunch now and begin? Do you have a --</p> <p>14 A. I'm going to need a bio break probably in</p> <p>15 about 20 minutes, but I can break now, whatever</p> <p>16 works for everyone.</p> <p>17 MR. JAMES: Up to y'all. Susan?</p> <p>18 BY MS. THOMPSON:</p> <p>19 Q. Actually, I have a few more questions I can</p> <p>20 ask on your report and then we can break and start</p> <p>21 with them.</p> <p>22 A. Okay.</p> <p>23 MR. JAMES: Also, we would be taking a</p> <p>24 longer lunch break when we break, correct?</p> <p>25 MS. THOMPSON: Longer than the five-minute</p>

<p style="text-align: right;">Page 134</p> <p>1 break?</p> <p>2 MR. JAMES: Yeah.</p> <p>3 MS. THOMPSON: I hope so.</p> <p>4 MR. JAMES: Okay. Good.</p> <p>5 MS. THOMPSON: Let's go to the NCI PQ.</p> <p>6 (Permut Exhibit 16 was marked for identification.)</p> <p>7 THE WITNESS: Thank you.</p> <p>8 THE COURT REPORTER: You're welcome.</p> <p>9 BY MS. THOMPSON:</p> <p>10 Q. You would agree that at least from what's</p> <p>11 included in the PDQ, this would not constitute a</p> <p>12 comprehensive review of perineal talc exposure,</p> <p>13 would you agree?</p> <p>14 MR. JAMES: Object to the form and the</p> <p>15 wording, please.</p> <p>16 Q. Is a PDQ a comprehensive review of perineal</p> <p>17 talc exposure?</p> <p>18 A. It's meant to be a summary.</p> <p>19 MR. JAMES: Objection to the form, please.</p> <p>20 Q. Do you know how the PDQ is written?</p> <p>21 A. I believe it involves a panel of experts</p> <p>22 coming together to write it.</p> <p>23 Q. If a member of the PDQ expert committee says</p> <p>24 they assign it to one reviewer, would you have any</p> <p>25 reason to question that?</p>	<p style="text-align: right;">Page 136</p> <p>1 A. Well, I think it's meant to be a high-level</p> <p>2 summary.</p> <p>3 Q. Okay. And the PDQ regarding perineal tack</p> <p>4 lists -- I count seven --</p> <p>5 MS. O'DELL: Talc.</p> <p>6 MS. THOMPSON: What did I say?</p> <p>7 MS. O'DELL: Tack.</p> <p>8 Q. Perineal talc -- and when we talk about talc</p> <p>9 in this deposition, we're talking about the genital</p> <p>10 use of talc, correct?</p> <p>11 A. Yes.</p> <p>12 Q. And when we're talking about ovarian cancer,</p> <p>13 we're talking about epithelial ovarian cancer,</p> <p>14 correct?</p> <p>15 A. Yes.</p> <p>16 Q. So if we say one of those without specifying</p> <p>17 otherwise, we can assume that that's what both of us</p> <p>18 mean, correct?</p> <p>19 A. Correct.</p> <p>20 Q. I see seven references. You can count them.</p> <p>21 It begins with Huncharek as Reference 8. The</p> <p>22 previous ones refer to other issues addressed.</p> <p>23 Do you agree with that?</p> <p>24 A. Huncharek we already discussed, yes.</p> <p>25 Q. So seven references. And do you agree with</p>
<p style="text-align: right;">Page 135</p> <p>1 MR. JAMES: Just objection to the form and</p> <p>2 foundation.</p> <p>3 A. One reviewer of what's written, is that what</p> <p>4 you're asking?</p> <p>5 Q. Yes. Yes.</p> <p>6 A. It may be that it ends with one reviewer</p> <p>7 okaying the document. I'm not sure.</p> <p>8 Q. And you'd agree the expert committee that</p> <p>9 writes the PDQ are not NIH scientists, correct?</p> <p>10 A. I don't know that that's true.</p> <p>11 Q. You don't know one way or the other?</p> <p>12 A. I'd have to look at who the panel is and you</p> <p>13 had said funded, right, funded investigators by NIH?</p> <p>14 Q. Employed investigators by NIH.</p> <p>15 A. Employed?</p> <p>16 Q. Yes.</p> <p>17 A. I'd have to look at the panel to see.</p> <p>18 Q. We can look at that later. And the whole</p> <p>19 section on perineal talc exposure is about one page,</p> <p>20 correct? It begins on 21 of 27. It's a little less</p> <p>21 than a page long, correct?</p> <p>22 A. Yes.</p> <p>23 Q. Compared to your expert report, that's</p> <p>24 minimal, right?</p> <p>25 MR. JAMES: Objection to the wording.</p>	<p style="text-align: right;">Page 137</p> <p>1 the choice of articles that the reviewer and the</p> <p>2 author of the PDQ section on talc and ovarian cancer</p> <p>3 selected?</p> <p>4 MR. JAMES: Objection to the wording and to</p> <p>5 the form, please.</p> <p>6 A. It depends on what you mean do you agree</p> <p>7 with the selection. It depends on the intent here.</p> <p>8 I think they cited some key studies. They also</p> <p>9 cited a study that I'm deeply concerned about in</p> <p>10 terms of the design and the interpretation.</p> <p>11 Q. Okay. Well, we're not going to go into</p> <p>12 detail on those studies, but I do want to just ask</p> <p>13 you about the risk found in each of these studies.</p> <p>14 You may need to look on your chart if you are not</p> <p>15 going to accept what I am going to suggest.</p> <p>16 A. My Table 6, is that what we're taking about?</p> <p>17 Q. Your table. Did you list the risk ratio of</p> <p>18 each study? Okay. So we can just go through these.</p> <p>19 Huncharek 2003, the meta-analysis, provides</p> <p>20 a risk of 1.33. That is a confidence interval that</p> <p>21 does not cross 1, do you agree?</p> <p>22 A. That's correct.</p> <p>23 MR. JAMES: If I can, let's take this slower</p> <p>24 because you're -- if we can.</p> <p>25 Q. And Terry is on your chart, is a pooled</p>

<p style="text-align: right;">Page 138</p> <p>1 study, correct?</p> <p>2 A. Yes.</p> <p>3 Q. And Terry finds a 1.24 risk with a</p> <p>4 confidence interval that does not cross 1?</p> <p>5 A. Correct.</p> <p>6 Q. Statistically significant. Woolen has a</p> <p>7 1.47 ratio, risk ratio, with 1.31 to 1.656. That's</p> <p>8 statistically significant, correct?</p> <p>9 MR. JAMES: And again, if I can just make</p> <p>10 sure that you are not being rushed as you look</p> <p>11 through the studies. Okay?</p> <p>12 THE WITNESS: (Nodding head.)</p> <p>13 Q. I think you're just looking at your chart</p> <p>14 that has them all listed?</p> <p>15 MR. JAMES: She's faster than I am and I</p> <p>16 don't want to be rushed either.</p> <p>17 MS. THOMPSON: We'll slow down.</p> <p>18 MR. JAMES: Thank you.</p> <p>19 A. Yes, I see that reported, and that's the</p> <p>20 study that I have issues with.</p> <p>21 Q. Uh-huh. I understand that would possibly be</p> <p>22 the study you have issues to.</p> <p>23 And O'Brien has an overall risk ratio -- and</p> <p>24 that's the pooled study of four cohorts, correct?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 140</p> <p>1 Do you know if it was increased and statistically</p> <p>2 significant for frequent users?</p> <p>3 A. I'd have to look.</p> <p>4 Q. Were all the plaintiff cases that you looked</p> <p>5 at in this case frequent users of talc?</p> <p>6 MR. JAMES: Objection; form.</p> <p>7 Q. Did you look at individual plaintiff cases?</p> <p>8 A. I did.</p> <p>9 Q. All -- how many did you look at?</p> <p>10 A. I have focused on four in my report.</p> <p>11 Q. And were those four frequent users of talc,</p> <p>12 or do you not know?</p> <p>13 A. It depends how one defines frequent, and I'd</p> <p>14 have to look into specifics of each of those.</p> <p>15 Q. Were they daily users?</p> <p>16 MR. JAMES: Just objection to form, and if</p> <p>17 you don't know at this time, just say you don't</p> <p>18 know.</p> <p>19 A. Yeah. I don't recall.</p> <p>20 Q. Yeah, that's fine.</p> <p>21 And PDQ cites Schildkraut. Schildkraut</p> <p>22 found 1.44, statistically significant, correct?</p> <p>23 A. I would have to --</p> <p>24 Q. Can you look on your chart?</p> <p>25 A. Yes.</p>
<p style="text-align: right;">Page 139</p> <p>1 Q. The one in 2020 that you like or that you</p> <p>2 mentioned that you like, I think those weren't</p> <p>3 exactly your words but if that's -- if I misstated</p> <p>4 your testimony, feel free to correct me.</p> <p>5 MR. JAMES: No. I'm going to object to the</p> <p>6 form and the wording and the characterization of</p> <p>7 her testimony.</p> <p>8 Q. Okay. For all users, or all comers, all</p> <p>9 ovarian cancer and I believe ever use, it's a 1.08,</p> <p>10 that confidence interval is .99 to 1.17, correct?</p> <p>11 A. Correct.</p> <p>12 Q. And we're going to go into more detail with</p> <p>13 O'Brien later. I'm just going to ask you the actual</p> <p>14 risk with each of these studies cited by PDQ.</p> <p>15 With patent reproductive tract, it was 1.13.</p> <p>16 That was statistically significant, correct?</p> <p>17 A. Yes, and when they limited that to confirmed</p> <p>18 cases, it was no longer significant.</p> <p>19 Q. Okay. But this is what they reported in</p> <p>20 their conclusions.</p> <p>21 And did you look at the frequent users</p> <p>22 table?</p> <p>23 A. Would you like me to look at the frequent --</p> <p>24 Q. We're going to come back to O'Brien, so we</p> <p>25 can look at it there if you don't know what it is.</p>	<p style="text-align: right;">Page 141</p> <p>1 Q. I'm not trying to be inaccurate or trick you</p> <p>2 in any way.</p> <p>3 A. Correct.</p> <p>4 Q. And Gertig was a 1.09 overall with a 1.40,</p> <p>5 statistically significant with invasive serous,</p> <p>6 correct?</p> <p>7 MR. JAMES: Objection; form, and you missed</p> <p>8 the confidence interval there in the 1.409.</p> <p>9 Q. The confidence interval was not</p> <p>10 statistically significant?</p> <p>11 A. Correct.</p> <p>12 Q. And Houghton, a cohort study, correct?</p> <p>13 A. Correct.</p> <p>14 Q. Found a 1.08 with a confidence interval .99</p> <p>15 to 1.17, correct?</p> <p>16 A. I have something different but it's also not</p> <p>17 significant.</p> <p>18 Q. And this PDQ, which was updated I believe in</p> <p>19 March, does not include the 2024 O'Brien study, does</p> <p>20 it?</p> <p>21 A. Certainly.</p> <p>22 Q. So of these seven, six have a statistically</p> <p>23 significant increased risk and Houghton has an</p> <p>24 increased risk that is .99, barely crosses 1?</p> <p>25 MR. JAMES: Objection to form, and I think</p>

<p style="text-align: right;">Page 142</p> <p>1 that misstates the numbers that we just went 2 through. 3 A. Correct. 4 Q. Well, the only one that could be at issue is 5 the invasive serous with Gertig, if you wanted -- 6 okay. Let me rephrase that. 7 Found at least one group that was 8 statistically significant and an increased risk, 9 correct? 10 MR. JAMES: Just objection to form. I think 11 you need to rephrase the question. 12 Q. Of these -- let's -- of these studies, 13 which -- are there studies that show -- well, let me 14 ask you a question. 15 Is it your opinion that if a study is not 16 statistically significant, that it means there is no 17 association? 18 A. I think it's important for me to state as an 19 epidemiologist, statistical significance is one tool 20 in our toolbox where we assess a study and its 21 significance. 22 On top of that, though, your question was 23 about association? What was it? 24 Q. My question was if there is a study that 25 shows an increased risk ratio that is not</p>	<p style="text-align: right;">Page 144</p> <p>1 now and you are assuming -- you're dismissing -- 2 you know what, just objection to the form. 3 BY MS. THOMPSON: 4 Q. Are there any of these studies that show 5 that there is less than 1 that talcum powder is a 6 protective factor? 7 MR. JAMES: Just objection to form. 8 A. Not in their main findings. I'd have to 9 look at subset analysis to see if any of them did 10 report that. 11 Q. And I'm sure they did, but -- 12 A. Not that -- not the parameter estimates that 13 we talked about right now. 14 Q. Okay. Let's just go over them again. 15 Huncharek, 1.33, statistically significant, agree? 16 Do you agree? 17 MR. JAMES: Okay. Objection; asked and 18 answered. Are we going to go through all seven 19 again? 20 MS. THOMPSON: I don't want to go over it 21 again but there seems to be a lot of confusion. 22 MR. JAMES: Because you keep combining 23 subgroups in some and not in others, and then you 24 got to O'Brien and then you asked her to think 25 about patent finding, and then you got to Gertig</p>
<p style="text-align: right;">Page 143</p> <p>1 statistically significant, do you -- is your 2 conclusion is that there is no association? 3 A. Correct, and that's what we've been taught 4 for years and I would say that it would be 5 hard-pressed to have a journal that disagrees with 6 that these days. It's hard to get a study published 7 if you don't have that p value and have that 8 threshold for statistical significance. 9 Q. You are aware that most journals have gotten 10 away from p value and are just requesting confidence 11 interval, correct? 12 MR. JAMES: Just objection to form. 13 A. I don't know about most. 14 Q. Well, do you know the New England Journal 15 has eliminated p value and gone just to confidence 16 interval? 17 MR. JAMES: Just objection to the form. 18 Q. And we're going to go over some 19 epidemiologists that would disagree with you on 20 that, but we can do that in a while. 21 Is there any of these studies that show a 22 risk ratio less than 1? 23 MR. JAMES: Just objection to the form. 24 MS. THOMPSON: What's wrong with that form? 25 MR. JAMES: You're asking about risk ratio</p>	<p style="text-align: right;">Page 145</p> <p>1 and you asked her to think just about the serous 2 finding. 3 MS. THOMPSON: Okay. All right. 4 MR. JAMES: That's the problem. 5 BY MS. THOMPSON: 6 Q. Do you agree that Huncharek, Terry, Woolen, 7 Schildkraut, all show a statistically significant 8 increased risk of ovarian cancer with talcum powder 9 use? 10 A. They all report that. 11 Q. And do you agree that O'Brien reports a 12 statistically significant increased risk with patent 13 reproductive tract and frequent use? 14 MR. JAMES: Objection; form, and asked and 15 answered. 16 A. They report that but they do further 17 analysis and the association is no longer there. 18 Q. And do you agree that Gertig shows a 19 statistically increased risk with invasive serous 20 cancer? 21 MR. JAMES: Objection; asked and answered 22 two or three times now. 23 MS. THOMPSON: This is the only way to 24 clarify, for the record. I'm sorry, Scott. 25 A. Same as reported, and that risk was no</p>

<p style="text-align: right;">Page 146</p> <p>1 longer statistically significant once they confined 2 to pathologically confirmed cases. 3 Q. At least PDQ selected Gertig as one of the 4 seven articles that they considered, correct? 5 A. They considered it because it's a 6 prospective cohort study. 7 Q. They could have considered Gates or Gonzalez 8 or others? 9 A. They could have. 10 Q. And so at least the PDQ's statement -- well, 11 do you agree with the PDQ statement: Results from 12 case-control and cohort studies are inconsistent, so 13 the data are inadequate to support an association 14 between perineal talc exposure and an increased risk 15 of ovarian cancer? 16 A. So I don't I don't know exactly where that 17 was read from but I do -- 18 Q. The first sentence in the perineal 19 talc exposure. 20 A. Ah, okay. Yeah. Yes, consistency is one of 21 the key criteria that Bradford Hill uses to assess 22 causality, and we do see discrepancies between 23 case-control and cohort studies, so I do believe 24 they are inconsistent. I agree with that first 25 sentence, and there --</p>	<p style="text-align: right;">Page 148</p> <p>1 opinions at all in this case? 2 MR. JAMES: Objection to the form. 3 Objection to foundation. Objection to confusing 4 hypothetical. 5 Q. Do you understand my question, Dr. Permuth? 6 A. Permuth. I would be hard-pressed to think 7 that investigators involved with the PDQ would add 8 anything substantive that would support the talc 9 hypothesis from the latest O'Brien 2024 article 10 because I believe there are flaws with the data. 11 Q. What if it was based on all the literature, 12 a review by a new author, would it change your 13 opinions? 14 MR. JAMES: Same objections, please, to form 15 and hypothetical and foundation. 16 A. I don't think another review article would 17 change my opinions. 18 Q. No. I'm asking if the PDQ -- if the PDQ 19 moved talcum powder to the section that has adequate 20 evidence, would it change your opinions in this 21 case? 22 MR. JAMES: Objection; asked and answered. 23 I think that's the question she just answered. 24 A. I don't think there is any data that would 25 support talc going from inadequate evidence to</p>
<p style="text-align: right;">Page 147</p> <p>1 Q. If -- 2 A. Go ahead. 3 Q. Were you finished? I didn't want to 4 interrupt. 5 A. There is more I have to say but we can go 6 ahead. 7 Q. And we'll be talking some more about that 8 later. 9 If the PDQ were to modify this statement 10 based on the new O'Brien study, would your opinions 11 change at all? 12 MR. JAMES: Objection to the form. 13 Objection to the highly confusing hypothetical. 14 MS. THOMPSON: Let me try to clarify it. 15 It's a hypothetical. 16 MR. JAMES: Objection to lack of foundation 17 and that's my objection. 18 MS. THOMPSON: Object to form is sufficient. 19 MR. JAMES: No. I'm allowed to say 20 foundation, I'm allowed to say speculation, but 21 thank you for the help. 22 BY MS. THOMPSON: 23 Q. If the PDQ were to change their conclusion 24 based on the recent ovarian cancer and talc study by 25 O'Brien published in May, would that modify your</p>	<p style="text-align: right;">Page 149</p> <p>1 supportive evidence. 2 Q. Are you aware that at least one of the 3 articles cited in the introduction of "Who Is at 4 Risk," one of I believe four -- no, let's see. 5 Maybe one of one. Let me look. 6 In the "Who Is at Risk," second paragraph: 7 Risk factors for ovarian cancer include family 8 history of breast and ovarian cancer and inheritance 9 of deleterious mutations, and other selected other 10 high-penetrance genes, and it gives References 2 to 11 6? 12 A. Uh-huh. 13 Q. Are you aware that the Hunn article lists 14 talcum powder as an accepted risk factor? 15 MR. JAMES: Just objection to assumes facts. 16 Sorry. 17 Q. If you're not, just say "I don't know." 18 MR. JAMES: Objection to assumes facts not 19 in evidence. 20 A. Yeah, I don't know. I haven't looked at 21 that article. 22 Q. Okay. 23 A. That I know of. 24 Q. Do any of the articles on your entire list 25 of 600 affirmatively state that talc is safe to use?</p>

<p style="text-align: right;">Page 150</p> <p>1 MR. JAMES: Just objection to form.</p> <p>2 Q. And it doesn't have to be those exact words</p> <p>3 but say it's safe to use talc, if you're using it,</p> <p>4 continues, is there any article that you can recall</p> <p>5 that states that?</p> <p>6 MR. JAMES: Just objection to form, please.</p> <p>7 A. I don't believe so.</p> <p>8 Q. Okay. But that's your opinion, correct?</p> <p>9 MR. JAMES: Objection to form.</p> <p>10 A. You asked if I knew of any. I don't recall.</p> <p>11 Q. Is your opinion that talc is safe to use?</p> <p>12 A. I believe talc is an inert substance that</p> <p>13 does not cause ovarian cancer.</p> <p>14 Q. My question is do you believe that the</p> <p>15 genital use of talc is safe?</p> <p>16 MR. JAMES: Just objection to form and asked</p> <p>17 and answered.</p> <p>18 A. I don't believe it causes cancer.</p> <p>19 Q. Does it cause anything else that would make</p> <p>20 it unsafe?</p> <p>21 A. No. In fact it --</p> <p>22 MR. JAMES: Objection to form. Sorry.</p> <p>23 A. In fact, talc has been shown to be helpful</p> <p>24 in patients with pleurodesis, so, no, I don't think</p> <p>25 it's a harmful agent.</p>	<p style="text-align: right;">Page 152</p> <p>1 there is not a plausible mechanism for how talc</p> <p>2 could cause ovarian cancer?</p> <p>3 MR. JAMES: Objection to form. Are you</p> <p>4 asking for those exact words?</p> <p>5 MS. THOMPSON: No, something similar to</p> <p>6 that, there is no plausible mechanism for how</p> <p>7 talc can cause ovarian cancer.</p> <p>8 Q. If you want to use a substitute word,</p> <p>9 possible for plausible, but just the gist of that.</p> <p>10 MR. JAMES: She's asking about your report</p> <p>11 now.</p> <p>12 MS. THOMPSON: The report or any of her 600</p> <p>13 citations.</p> <p>14 MR. JAMES: Right. I'm saying you can take</p> <p>15 time and look through your report if you would</p> <p>16 like to.</p> <p>17 A. That's why I pulled my report out. I do</p> <p>18 believe there are citations that talk about a</p> <p>19 mechanism just being unclear. Is that what</p> <p>20 you're --</p> <p>21 Q. No. I want to -- because your opinion is</p> <p>22 there is not a plausible mechanism, correct?</p> <p>23 A. Correct.</p> <p>24 Q. Is there any that say there is not a</p> <p>25 plausible mechanism, not that say it's unclear but</p>
<p style="text-align: right;">Page 151</p> <p>1 Q. What's the definition of cosmetic product,</p> <p>2 do you know?</p> <p>3 A. I don't know that I can define that.</p> <p>4 Q. Is talcum powder a cosmetic product, or do</p> <p>5 you know?</p> <p>6 A. I believe it's considered --</p> <p>7 Q. And if the definition was a product that has</p> <p>8 no medical benefits, would you disagree with that</p> <p>9 definition?</p> <p>10 MR. JAMES: Just objection to form and</p> <p>11 assumes facts not in evidence and hypothetical.</p> <p>12 A. I don't know what the question is. I'm not</p> <p>13 sure on what you're asking.</p> <p>14 Q. I'm asking is talcum powder --</p> <p>15 A. A cosmetic product?</p> <p>16 Q. Yes.</p> <p>17 A. I believe so.</p> <p>18 Q. Do you know who is responsible for ensuring</p> <p>19 safety of a cosmetic product?</p> <p>20 MR. JAMES: Objection. I think this is --</p> <p>21 I'll just say objection; form.</p> <p>22 A. Probably some environmental agency. I'm not</p> <p>23 sure.</p> <p>24 Q. Do any of the articles on your list of 600</p> <p>25 that are cited in your report, do any of them state</p>	<p style="text-align: right;">Page 153</p> <p>1 it could be this, you know, there is not a plausible</p> <p>2 mechanism.</p> <p>3 MR. JAMES: Object to form and that's a</p> <p>4 broad question.</p> <p>5 A. I need a few minutes.</p> <p>6 MR. JAMES: Take your time.</p> <p>7 A. Yeah. So in terms of proposed mechanisms,</p> <p>8 IARC comments on this. I'm on Page 143 of my</p> <p>9 report, IARC Citation 449, as well as others'</p> <p>10 meta-analyses talk about the proposed mechanisms by</p> <p>11 which talc may cause ovarian cancer being weak and</p> <p>12 speculative. Those may be my words but these were</p> <p>13 also supported by comments from --</p> <p>14 Q. What page are you on?</p> <p>15 A. I'm on Page 143, bottom paragraph, talking</p> <p>16 about evidence from Plaintiffs for proposed</p> <p>17 mechanisms is weak and speculative, sentiments</p> <p>18 echoed by IARC and numerous authors mentioned here,</p> <p>19 including those who published recent meta-analyses.</p> <p>20 So I'm pointing to 413 and 416, which is</p> <p>21 Berge and Penninkilampi, which I believe discuss how</p> <p>22 mechanisms -- they --</p> <p>23 Q. So it's your opinion that Berge and</p> <p>24 Penninkilampi and IARC say something like there's no</p> <p>25 plausible mechanism for how talc causes ovarian</p>

<p style="text-align: right;">Page 154</p> <p>1 cancer?</p> <p>2 A. I believe they probably say it's unclear.</p> <p>3 Q. Is unclear the same as no plausible</p> <p>4 mechanism, in your mind?</p> <p>5 MR. JAMES: Objection to form.</p> <p>6 A. I would want to look at the wording.</p> <p>7 Q. Okay.</p> <p>8 A. But they certainly don't come out and say</p> <p>9 talc -- it is very clear that talc has a mechanism</p> <p>10 that could contribute to ovarian cancer. There's</p> <p>11 nothing like that.</p> <p>12 Q. Well, you know that Penninkilampi -- I don't</p> <p>13 have it with me -- states that his epidemiologic</p> <p>14 evidence supports the mechanism for how talc can</p> <p>15 cause ovarian cancer. Are you aware of that?</p> <p>16 MR. JAMES: Objection to form. You just</p> <p>17 said you don't have the paper. Are you</p> <p>18 paraphrasing?</p> <p>19 MS. THOMPSON: Well, she's saying it does.</p> <p>20 I'm assuming she knows what it says.</p> <p>21 MR. JAMES: I'll object to the form. You're</p> <p>22 paraphrasing a paper that you don't have.</p> <p>23 BY MS. THOMPSON:</p> <p>24 Q. And you know that Penninkilampi states that</p> <p>25 his study is suggestive for causal association, do</p>	<p style="text-align: right;">Page 156</p> <p>1 the portion of the deposition you are handling.</p> <p>2 Thank you.</p> <p>3 MS. O'DELL: Fair enough, but this will move</p> <p>4 this along.</p> <p>5 MS. THOMPSON: Yeah, we'll clear it up.</p> <p>6 We'll clear it up.</p> <p>7 BY MS. THOMPSON:</p> <p>8 Q. Okay. Reading from the discussion in</p> <p>9 Penninkilampi: If chronic inflammation due to</p> <p>10 ascending foreign bodies is indeed the mechanism by</p> <p>11 which talc is associated with increased ovarian</p> <p>12 cancer risk, then these results fit the picture.</p> <p>13 MR. JAMES: Can I give her a copy of the</p> <p>14 paper if you don't have an extra?</p> <p>15 MS. THOMPSON: Sure, and she can tell me if</p> <p>16 I read that correctly.</p> <p>17 MR. JAMES: I think you're missing some</p> <p>18 pretty important language.</p> <p>19 BY MS. THOMPSON:</p> <p>20 Q. And then also, regarding my other thing --</p> <p>21 MR. JAMES: Are we going to mark</p> <p>22 Penninkilampi?</p> <p>23 MS. THOMPSON: Sure, we can mark</p> <p>24 Penninkilampi.</p> <p>25 MR. JAMES: Here you go.</p>
<p style="text-align: right;">Page 155</p> <p>1 you know that?</p> <p>2 A. Let's look at the wording together.</p> <p>3 Q. So you couldn't have a causal association if</p> <p>4 you don't believe there is a mechanism, could you?</p> <p>5 MR. JAMES: Objection to the form.</p> <p>6 MS. THOMPSON: Okay. We'll read it.</p> <p>7 MR. JAMES: Now we're just grasping at</p> <p>8 straws here.</p> <p>9 MS. THOMPSON: Hardly.</p> <p>10 MR. JAMES: Talking about a study that you</p> <p>11 don't have with you and you're representing the</p> <p>12 study to the witness.</p> <p>13 MS. THOMPSON: She's the one that --</p> <p>14 MR. JAMES: You don't have it with you.</p> <p>15 MS. THOMPSON: She's the one that said</p> <p>16 Penninkilampi says a mechanism -- there is no</p> <p>17 plausible mechanism.</p> <p>18 A. I said a mechanism is not clear.</p> <p>19 MR. JAMES: Objection to the form again.</p> <p>20 You asked about that language. I said do you</p> <p>21 want that specific language. You said or it</p> <p>22 could be something like that. At this point we</p> <p>23 don't even know what question we're answering.</p> <p>24 MS. O'DELL: Scott, please --</p> <p>25 MR. JAMES: Thank you, Leigh, this is not</p>	<p style="text-align: right;">Page 157</p> <p>1 THE WITNESS: Thank you.</p> <p>2 (Permuth Exhibit 17 was marked for identification.)</p> <p>3 A. May I?</p> <p>4 Q. I'm reading from Page 45, middle of the</p> <p>5 seconding column, first paragraph: If chronic</p> <p>6 inflammation due to ascending foreign bodies is</p> <p>7 indeed the mechanism by which talc use is associated</p> <p>8 with increased ovarian cancer risk, then these</p> <p>9 results fit the picture.</p> <p>10 Did I read that correctly?</p> <p>11 A. You read it correctly.</p> <p>12 Q. And then --</p> <p>13 A. I'd like to point out the final sentence of</p> <p>14 that paragraph: Unfortunately, the evidence remains</p> <p>15 insufficient to understand the mechanism with any</p> <p>16 reasonable certainty.</p> <p>17 If I may, let's also goes to the last</p> <p>18 paragraph.</p> <p>19 Q. No, I haven't -- I don't have a question on</p> <p>20 the table.</p> <p>21 MR. JAMES: She's finishing her answer. You</p> <p>22 asked her about mechanism in Penninkilampi and</p> <p>23 she's giving you the answer whether you like the</p> <p>24 answer or not.</p> <p>25 A. Last paragraph: There is a substantial need</p>

<p style="text-align: right;">Page 158</p> <p>1 for future -- or further research on a potential 2 mechanism by which ovarian cancer may be caused by 3 talc, as this will allow a causal relationship to be 4 established or rejected with more certainty. 5 Q. Okay. And that is talking about certainty, 6 correct? 7 MR. JAMES: Objection; the paper speaks for 8 itself. 9 Q. And Penninkilampi also states in the 10 conclusions: The results of this review indicate 11 that perineal talc use is associated with a 24 to 39 12 percent increased risk of ovarian cancer. While the 13 results of case-control studies are prone to recall 14 bias, especially with intense media attention 15 following the commencement of litigation in 2014, 16 the confirmation of an association in cohort studies 17 between perineal talc use and serous ovarian cancer 18 is suggestive of a causal association. 19 Did I read that correctly? 20 A. You did, and I noted that that association 21 goes away after they do more analysis on confirmed 22 cases. 23 Q. I'm reading the conclusions of 24 Penninkilampi, correct? 25 A. Yeah. I'm just giving more context.</p>	<p style="text-align: right;">Page 160</p> <p>1 Q. I believe it's Dr. Wehner or Wehner. And do 2 you know that Dr. Wehner is a paid consultant of 3 Johnson & Johnson? 4 A. I don't recall that. 5 Q. Do you know if Johnson & Johnson sponsored 6 the Wehner study? 7 A. I don't recall. I don't have that paper in 8 front of me to look at. 9 Q. And is it your opinion that this monkey 10 study is evidence against the ability of particles 11 to reach the tubes and ovaries and peritoneal cavity 12 after genital application of talc? 13 A. I'm just orienting myself with the study 14 right now and what I've written. 15 I would say it does not demonstrate 16 translocation of the talc to the -- through the 17 reproductive tract, so that's in line with what I've 18 been saying. 19 Q. Did the monkeys have intercourse? 20 A. I don't believe so. I don't recall. 21 Q. Did you read Dr. Saenz', gyn oncologist for 22 the defendants, report or depositions? 23 A. Dr. Saenz? I don't recall. 24 Q. Are you aware that Dr. Saenz testified that 25 talcum powder can be pushed into the reproductive</p>
<p style="text-align: right;">Page 159</p> <p>1 Q. Okay. 2 MR. JAMES: I think we may have hit our 20 3 minutes. How is everyone doing? 4 MS. THOMPSON: Want to break for lunch? 5 THE WITNESS: I would like to. 6 MR. JAMES: Yes, please. 7 (Recess from 12:43 p.m. until 1:37 p.m.) 8 BY MS. THOMPSON: 9 Q. Dr. Permuth, let's continue with some of the 10 mechanistic studies that you reviewed and your 11 opinions there. If you will, turn to Page 102 in 12 your report. 13 A. Okay. 14 Q. On the topic of whether talc particles can 15 ascend or migrate to the -- from the vagina to the 16 ovary, and you start with a monkey study on this 17 page, correct, the Wehner study? 18 A. In that paragraph I start with a rat study, 19 it looks like. 20 Q. All right. Let's start with the monkey 21 study on Page 102. 22 A. Yes. 23 Q. And do you know the author of this paper? 24 A. I'd have to look up the citation to 25 remember.</p>	<p style="text-align: right;">Page 161</p> <p>1 tract with intercourse? 2 MR. JAMES: Just objection; foundation. 3 A. I don't recall that. 4 Q. Did these monkeys use talc every day for 5 decades? 6 A. I would suspect not. 7 Q. That is all my questions about monkeys. 8 Let's go to the human studies that you cite on 9 Page 112. 10 And let's look at the Venter study. It 11 begins at the last few lines of the first paragraph, 12 and another study, Venter and Iturralde, we'll mark 13 as Exhibit 18. 14 (Permuth Exhibit 18 was marked for identification.) 15 MS. THOMPSON: I'm sorry, I don't have an 16 extra copy of this one. 17 MS. O'DELL: Do you need it electronically? 18 MR. JAMES: If I can't find it, I'll let you 19 know. 20 BY MS. THOMPSON: 21 Q. In your conclusion from the Venter study 22 that you reviewed is: Again, this study suffers 23 from a lack of relevance between depositing large 24 numbers of particles in the posterior fornix 25 (internally near the cervix) versus external</p>

<p style="text-align: right;">Page 162</p> <p>1 perineal dusting of talc.</p> <p>2 Is your opinion that this study is not</p> <p>3 relevant to the migration issue?</p> <p>4 A. It's comparing apples and oranges. It's not</p> <p>5 the same mode of administration as one would expect</p> <p>6 for women in perineal dusting.</p> <p>7 Q. Well, let's look at what the actual authors</p> <p>8 have to say in this study, beginning with the first</p> <p>9 sentence: In the female, the peritoneal cavity is</p> <p>10 linked with the outside via the fallopian tubes, the</p> <p>11 uterus and the vagina, and there is evidence of</p> <p>12 migration of different substances in either</p> <p>13 direction.</p> <p>14 Do you disagree with that statement by the</p> <p>15 authors?</p> <p>16 A. No, I don't disagree with that.</p> <p>17 Q. And then in the discussion, they continue:</p> <p>18 Evidence is available for migration of different</p> <p>19 substances in either direction within the</p> <p>20 female --</p> <p>21 First sentence in the discussion: Evidence</p> <p>22 is available for migration of different substances</p> <p>23 in either direction within the female reproductive</p> <p>24 system between the peritoneal cavity and ovaries via</p> <p>25 the tubes, uterus and vagina and the outside.</p>	<p style="text-align: right;">Page 164</p> <p>1 MS. THOMPSON: Well, I believe I asked</p> <p>2 her -- I think implied that she agreed with that</p> <p>3 statement and I believe she said -- then she said</p> <p>4 I don't disagree, so I think we were clear on</p> <p>5 that.</p> <p>6 MR. JAMES: Was that your understanding of</p> <p>7 the question?</p> <p>8 A. I don't disagree that items or agents could</p> <p>9 enter the vagina, as this is alluding to.</p> <p>10 Q. Okay. And then the authors go on to state:</p> <p>11 If transit can take place so easily, it is probably</p> <p>12 the same for many chemical substances used for</p> <p>13 hygienic, cosmetic or medicinal purposes, many of</p> <p>14 which may have potential carcinogenic or irritating</p> <p>15 properties.</p> <p>16 Do you agree with that statement by the</p> <p>17 authors?</p> <p>18 A. What I would say is this hasn't been proven</p> <p>19 in the context of talc.</p> <p>20 Q. Is it plausible?</p> <p>21 MR. JAMES: Objection to form.</p> <p>22 A. Could talc reach the ovaries? I mean, I</p> <p>23 know there are reports of talc in the ovaries, so</p> <p>24 I'm not negating what people have reported.</p> <p>25 Q. How does the talc get there, in your</p>
<p style="text-align: right;">Page 163</p> <p>1 So at least the authors, I think, would say</p> <p>2 their study was relevant to the issue at hand.</p> <p>3 Wouldn't you agree?</p> <p>4 MR. JAMES: Just objection to form.</p> <p>5 A. I see what they're saying here and I believe</p> <p>6 most of the time in these studies the agents were</p> <p>7 put in, like, a solution and, again, wouldn't be</p> <p>8 representative of what we're talking about in these</p> <p>9 litigations.</p> <p>10 Q. Okay. And we're talking about what the</p> <p>11 authors think is relevant?</p> <p>12 A. What they said.</p> <p>13 Q. They go on to say: Gases, fluids, dyes and</p> <p>14 contrast media can easily be introduced from the</p> <p>15 vagina into the peritoneal cavity.</p> <p>16 You would agree with that, right?</p> <p>17 MR. JAMES: Just objection to the form.</p> <p>18 Q. Did I read it correctly?</p> <p>19 A. You did read it correctly.</p> <p>20 Q. Do you disagree with that?</p> <p>21 A. I'm not disagreeing but I am --</p> <p>22 MR. JAMES: Hold on. Just objection to</p> <p>23 form. Are you asking her if she disagrees that</p> <p>24 you read it correctly or are you asking if she</p> <p>25 disagrees with the statement?</p>	<p style="text-align: right;">Page 165</p> <p>1 opinion?</p> <p>2 MR. JAMES: Objection to the form.</p> <p>3 A. I'm not quite sure how it gets there. I</p> <p>4 know there are various hypotheses about that.</p> <p>5 Q. Okay. The authors go on: To prove this</p> <p>6 would be of great practical value, because migration</p> <p>7 of certain chemical substances could play an</p> <p>8 important aetiological role in gynecological</p> <p>9 diseases and especially in carcinoma of the ovary.</p> <p>10 Do you agree with that statement by the</p> <p>11 authors?</p> <p>12 A. I think it could be practical if there was</p> <p>13 an agent that was truly involved in cancer promotion</p> <p>14 to know that, but I don't believe talc is.</p> <p>15 Q. And do you know how that study could be done</p> <p>16 to prove it?</p> <p>17 MR. JAMES: Objection to form.</p> <p>18 A. It's hard in purely observational studies to</p> <p>19 be able to examine that.</p> <p>20 Q. And the authors state that the study</p> <p>21 demonstrates: The possibility of transit of</p> <p>22 particles from the vagina to the peritoneal cavity</p> <p>23 and ovaries.</p> <p>24 Is that what the authors state?</p> <p>25 A. It is what they state.</p>

<p style="text-align: right;">Page 166</p> <p>1 Q. And is it still your opinion that this study 2 suffers from a lack of relevance?</p> <p>3 A. This study doesn't show us that particles 4 are going from the exterior of the body, so there is 5 no external application with subsequent migration of 6 the talc to the ovaries that we are seeing here.</p> <p>7 Q. I believe my question, though, was is it 8 relevant?</p> <p>9 MR. JAMES: Objection to the form; asked and 10 answered.</p> <p>11 A. It's something I've considered.</p> <p>12 Q. But you've made a determination that it's 13 not plausible, correct?</p> <p>14 A. I don't feel that this is a biologically 15 plausible mechanism by which ovarian cancer occurs.</p> <p>16 Q. Okay. And then you also cite the Sjosten 17 study, next paragraph, and this will be Exhibit 19. 18 (Permut Exhibit 19 was marked for identification.)</p> <p>19 THE WITNESS: Thank you.</p> <p>20 MR. JAMES: She's on 112, Margaret?</p> <p>21 MS. THOMPSON: Yes. The next paragraph.</p> <p>22 MR. JAMES: Okay. Thank you.</p> <p>23 BY MS. THOMPSON:</p> <p>24 Q. And the authors state -- and this was a 25 study in which gloves powdered with cornstarch were</p>	<p style="text-align: right;">Page 168</p> <p>1 MR. JAMES: Just objection to form, and take 2 your time again, if you would like.</p> <p>3 Q. I'm just trying to find out where you came 4 up with the idea that the particles were deposited 5 sometimes with force.</p> <p>6 A. I think I'm probably referring to 7 operatively and the adhesions that can arise.</p> <p>8 Q. But the particles were introduced with 9 pelvic exam, right?</p> <p>10 A. Yes.</p> <p>11 Q. And typically a pelvic exam doesn't involve 12 force, does it?</p> <p>13 MR. JAMES: Just objection to form.</p> <p>14 A. Hopefully not. I don't recall why the word 15 "force" was used.</p> <p>16 Q. I'm going to go with the second part of that 17 sentence that is your conclusion: That the 18 particles are deposited well into the internal 19 genitalia.</p> <p>20 What's your evidence from this article that 21 particles were inserted or deposited well into the 22 internal genitalia? Is the vagina internal 23 genitalia?</p> <p>24 MR. JAMES: Just objection. She's looking 25 through the paper.</p>
<p style="text-align: right;">Page 167</p> <p>1 studied with a pelvic exam prior to hysterectomy. 2 Is that your understanding of the study?</p> <p>3 MR. JAMES: Did you answer?</p> <p>4 A. Yes.</p> <p>5 Q. And your conclusion is that: The authors 6 suggested that starch particles may migrate from the 7 vagina into the cervical canal, uterine cavity and 8 through the fallopian tube. Again, however, this 9 study involved particles deposited (sometimes with 10 force) well into the internal genitalia.</p> <p>11 Explain to me how you concluded that the 12 study involved particles deposited sometimes with 13 force. Is there any mention of force in this paper?</p> <p>14 A. I need to look at the methods again, so if 15 you will give me a moment.</p> <p>16 Q. Okay.</p> <p>17 A. I'm just trying to orient myself and know a 18 surgical procedure was involved here.</p> <p>19 Q. On the following day, correct?</p> <p>20 A. Yeah. Yeah.</p> <p>21 Q. Is there any mention of force in this 22 article.</p> <p>23 A. I don't know if the word "force" is used.</p> <p>24 Q. Is there any mention of something that would 25 resemble the word force?</p>	<p style="text-align: right;">Page 169</p> <p>1 A. Yeah, I think I was probably thinking about 2 the uterus at this point.</p> <p>3 Q. So that statement is incorrect?</p> <p>4 A. I think I might be interested in maybe -- I 5 don't know. I'd have to rethink the wording on 6 that.</p> <p>7 Q. It's incorrect, correct?</p> <p>8 MR. JAMES: Objection; asked and answered.</p> <p>9 If you want to take time to read the paper, you 10 can.</p> <p>11 A. All I do know is it doesn't seem that -- 12 because I write in the report ovarian tissue was 13 evaluated, so I'm not seeing a connection to the 14 ovaries here.</p> <p>15 Q. The following day, when the hysterectomy was 16 performed, right?</p> <p>17 A. (Nodding head.)</p> <p>18 Q. So you misinterpreted this study, sounds 19 like, correct?</p> <p>20 MR. JAMES: Just objection to the form.</p> <p>21 Q. Let's move on. It's not a very long paper. 22 Do you need to continue looking at it?</p> <p>23 A. It's just something I've looked at a long 24 time ago and I'm trying to connect some dots about 25 why I wrote what I did.</p>

<p style="text-align: right;">Page 170</p> <p>1 Q. And did you find the reason for why you</p> <p>2 wrote what you did, other than it was a</p> <p>3 misinterpretation of the study?</p> <p>4 MR. JAMES: Just objection to the form.</p> <p>5 A. I'm not clear on it right now. I'd want to</p> <p>6 keep looking on this.</p> <p>7 Q. How much longer do you think you would need?</p> <p>8 A. I'm not sure.</p> <p>9 Q. Okay. Keep looking.</p> <p>10 MS. THOMPSON: Let's go off the record.</p> <p>11 MR. JAMES: No.</p> <p>12 MS. THOMPSON: We frequently go off the</p> <p>13 record if an expert has -- takes a lot of time to</p> <p>14 review an article that she cited to. It's not an</p> <p>15 unfamiliar article to her.</p> <p>16 MR. JAMES: That's not correct.</p> <p>17 MS. THOMPSON: So we can go off the record.</p> <p>18 MR. JAMES: No, we're not going off the</p> <p>19 record. You're asking her specific questions</p> <p>20 about a specific article in her report.</p> <p>21 MS. THOMPSON: I'm asking about her</p> <p>22 statement.</p> <p>23 MR. JAMES: She's allowed to look at the</p> <p>24 article.</p> <p>25 MS. THOMPSON: She's been looking at it for</p>	<p style="text-align: right;">Page 172</p> <p>1 humans after a gynecologic examination with powdered</p> <p>2 gloves. Consequently, powder or any other</p> <p>3 potentially harmful substance that can migrate from</p> <p>4 the vagina should be avoided.</p> <p>5 Is that the authors' conclusions?</p> <p>6 A. I'm trying to see where you're at.</p> <p>7 Q. I'm in the abstract under Conclusions.</p> <p>8 A. Yes, that's what it says.</p> <p>9 Q. And the last paragraph on Page 991, the</p> <p>10 first page: A causal connection has been shown</p> <p>11 between operative tissue damage, intra-abdominal</p> <p>12 ischemia, infections, reactions to foreign materials</p> <p>13 such as sutures, particles of gauze, glove dusting</p> <p>14 powder and postoperative adhesions.</p> <p>15 And it gives citations.</p> <p>16 Is that what the authors stated?</p> <p>17 A. That's what the authors stated, yes.</p> <p>18 Q. Do you disagree with any part of that?</p> <p>19 MR. JAMES: Just objection to the form.</p> <p>20 A. Not per se. I just don't think this is</p> <p>21 directly related to talc.</p> <p>22 Q. Okay. And the authors, in the last -- well,</p> <p>23 in conclusion in the last paragraph: Our results</p> <p>24 show that starch particles can migrate from the</p> <p>25 vagina into the cervical canal, the uterine cavity</p>
<p style="text-align: right;">Page 171</p> <p>1 a good long while.</p> <p>2 MR. JAMES: Margaret, we just don't need the</p> <p>3 commentary. It's not appropriate. It's not.</p> <p>4 MS. THOMPSON: What about your commentary?</p> <p>5 A. I don't --</p> <p>6 MS. THOMPSON: And it is true that we -- you</p> <p>7 guys frequently have gone off the record whenever</p> <p>8 our expert needs to look at a study.</p> <p>9 MS. O'DELL: That's actually true.</p> <p>10 BY MS. THOMPSON:</p> <p>11 Q. Are you ready?</p> <p>12 A. I was just going to say I'm unclear about</p> <p>13 this statement and if I wrote it again today, maybe</p> <p>14 I would write it a little differently, but at the</p> <p>15 end of the day -- at the end of the day, this does</p> <p>16 not show us that talc migrates through the</p> <p>17 reproductive tract and causes ovarian cancer.</p> <p>18 Q. Does this study suffer from a lack of</p> <p>19 relevance like the previous study that you cited?</p> <p>20 A. I wouldn't say it lacks relevance. This is</p> <p>21 an unbiased look at all the literature that's out</p> <p>22 there related to what's been purported.</p> <p>23 Q. Let's look at the authors' conclusions on</p> <p>24 this paper. In the abstract conclusion: This study</p> <p>25 pointed out a retrograde migration of starch also in</p>	<p style="text-align: right;">Page 173</p> <p>1 and through the fallopian tubes up to four days</p> <p>2 after a gynecological examination with powdered</p> <p>3 gloves.</p> <p>4 Is it your opinion that the authors'</p> <p>5 statement of their findings is irrelevant to your</p> <p>6 opinion on whether talc can reach the ovaries?</p> <p>7 MR. JAMES: Just object to the form.</p> <p>8 A. I'm not saying that what they're saying is</p> <p>9 irrelevant, but how do these particles compare to</p> <p>10 talc, I really don't know.</p> <p>11 Q. So it doesn't inform your opinion at all as</p> <p>12 far as migration of talc particles?</p> <p>13 MR. JAMES: Objection to the form. I guess</p> <p>14 that was a misstatement of her testimony.</p> <p>15 BY MS. THOMPSON:</p> <p>16 Q. Well, I'm asking you a question. Does this</p> <p>17 article inform your opinion that talc particles</p> <p>18 cannot reach the ovaries?</p> <p>19 A. No, it does not --</p> <p>20 Q. -- from genital application?</p> <p>21 A. It does not change my opinion.</p> <p>22 Q. Okay. And then the last sentence: Since</p> <p>23 evidence suggests that a retrograde migration could</p> <p>24 be a general mechanism, our recommendation is that</p> <p>25 we should be critical of harmful substances, for</p>

<p style="text-align: right;">Page 174</p> <p>1 example, glove powder, that could migrate from the 2 vagina to the abdominal cavity. 3 Would you disagree with that conclusion by 4 the authors? 5 MR. JAMES: Objection to form. 6 A. In light of what they are saying, it makes 7 sense that they would conclude with a statement like 8 that. It doesn't mean that I think talc migrates in 9 that fashion, though. 10 Q. Okay. Is that because it was your belief 11 that this study involved particles deposited 12 sometimes with force well into the internal 13 genitalia? 14 A. Not necessarily. I'm just thinking about 15 talc as an agent and the fact that if it really was 16 causative and really was migrating through the 17 reproductive tract up to the ovaries, that we would 18 see cancer in other organs, and we're simply not, so 19 I don't think biologically this is a mechanism for 20 that talc -- a mechanism by which talc could promote 21 ovarian cancer. 22 Q. Now let me read you something from your 23 report under biologic plausibility on Page 121, and 24 you state that: With regard to the mechanism by 25 which inanimate talc particles could migrate from</p>	<p style="text-align: right;">Page 176</p> <p>1 A. Potentially one of his mentees, like 2 Dr. Terry or others. 3 Q. Can we look at the -- so you can't point to 4 any one today? 5 MR. JAMES: Objection to the form. 6 A. At this moment I can't, but I'm -- I can go 7 through my report and find an example, I think. 8 Q. Sure. I'd love for you to find an example 9 that the mechanism of migration of talc particles 10 applied to the perineum can reach the ovaries that 11 attributes that hypothesis to Cramer. 12 MR. JAMES: Objection to the form. I'm 13 extremely confused about what's happening here. 14 Q. Let's read what she says. 15 A. Now I'm confused by the question. 16 Q. With regard to the mechanism by which 17 inanimate talc particles can migrate from the 18 perineal area to the ovaries, the hypothesis 19 purported by Cramer, et al... 20 You're attributing that hypothesis to 21 Cramer, correct? 22 A. Yes. 23 Q. And I asked you for -- Cramer does purport 24 that but I don't believe that there's any 25 epidemiological study that also purports that that</p>
<p style="text-align: right;">Page 175</p> <p>1 the perineal area to the ovaries, the hypothesis 2 purported by Cramer, et al. -- 3 Is that who you attribute the hypothesis of 4 migration of talc particles to? 5 A. I know Cramer has definitely remarked on 6 this, so that's why his work is cited there. 7 Q. And wouldn't you agree that virtually every 8 epidemiological study comments on the same thing? 9 MR. JAMES: Objection to form. 10 A. Every epidemiologic study related to the 11 talc association? 12 Q. Yes. Every epidemiological -- 13 A. I would say the majority would cite 14 Dr. Cramer. 15 Q. Can you show me a paper that talks about 16 migration of talc particles that cites Cramer? 17 MR. JAMES: Objection to the form. 18 A. With that they may cite him as proposing 19 this as a mechanism, so in terms of citing a paper 20 that says that, I can definitely look through and 21 find one. I don't have my articles with me. 22 Q. You don't have anything that comes to mind 23 as a paper that would cite Cramer as to the 24 plausible mechanism for talc migrating from the 25 vagina to the peritoneal cavity?</p>	<p style="text-align: right;">Page 177</p> <p>1 would cite Cramer as to the explanation. 2 MR. JAMES: Objection to form. I have no 3 idea what you're asking. 4 Q. Well -- 5 A. I can't find anything that proves -- I can't 6 find anything that proves that hypothesis, if that's 7 what you're asking. There is nothing out there. 8 Q. Let's move on. And then you state: 9 Suggests that the talc -- let's see. 10 With regard to the mechanism -- I'm trying 11 to understand her sentence here. 12 With regard to the mechanism by which 13 inanimate talc particles could migrate from the 14 perineal area to the ovaries, the hypothesis 15 purported by Cramer suggests that the talc must 16 migrate upwards against gravity. 17 What is your evidence that talc particles 18 would have to migrate upwards against gravity to 19 reach the peritoneal cavity? 20 A. They'd have to ascend or move up the genital 21 tract. 22 Q. Do women ever lie down? 23 A. They do. 24 Q. That wouldn't be against gravity, would it? 25 A. One could say that, but I would also argue</p>

<p style="text-align: right;">Page 178</p> <p>1 that, again, we need to consider when a woman is 2 standing up. 3 Q. Do you know the angle of the vagina in any 4 kind of position of a woman? 5 MR. JAMES: Objection to form. 6 Q. Do you understand my question? 7 A. I'm not a gyn -- I'm not a gynecologist. 8 Q. Would with you defer questions of anatomy 9 and physiology of the female reproductive tract to a 10 gynecologist? 11 A. They would be best suited to answer that. 12 Q. And what is the uterine peristaltic pump? 13 A. That allows for contractions throughout the 14 reproductive tract. 15 Q. And which way does it facilitate movement? 16 A. Well, if we're talking births, it would 17 allow for movement to go down. 18 Q. Is it your opinion that the uterine 19 peristaltic pump is somehow involved in labor, or do 20 you know? 21 A. Again, that's something I would have a 22 gynecologist answer better than me. 23 Q. Okay. But then you state: This 24 hypothesized process is not mechanistically logical. 25 How do you -- what -- refer me to an</p>	<p style="text-align: right;">Page 180</p> <p>1 Q. Please find me something in your report that 2 says anything close to this hypothesized process is 3 not -- how come I can't say that word -- 4 mechanistically logical, anything. 5 A. Again, it's a lot of material. It's a lot 6 that I don't have memorized per se. So I need to 7 take time -- 8 Q. No, I'm not asking you -- go through it. 9 A. -- to look through my report. 10 Q. And while you're at it, see if you can find 11 something that talc must migrate upwards against 12 gravity. Let's find that one, too. 13 MR. JAMES: Objection to the form and the 14 argumentative nature of this deposition. 15 MS. THOMPSON: I'm just asking her to 16 find -- 17 MR. JAMES: Excuse me. I'm making my 18 objections. 19 MS. THOMPSON: I thought it was form. 20 MR. JAMES: Thank you. It's objection; 21 form. Objection; argumentative. 22 MS. THOMPSON: That I'm asking her for a 23 citation for the statements she made in this 24 paragraph? 25 MR. JAMES: Margaret, this is not a</p>
<p style="text-align: right;">Page 179</p> <p>1 article, a textbook, anything, that says the concept 2 that particles can migrate from the perineal area to 3 the ovaries is not mechanically -- 4 A. Mechanistically. 5 Q. -- mechanistically logical. Can you point 6 me to anything that says anything close to that? 7 MR. JAMES: Objection to the form, and 8 you're asking her to point to anything, so 9 objection to the vagueness. 10 MS. THOMPSON: Well, I don't think she can 11 find anything. 12 BY MS. THOMPSON: 13 Q. These are your words, Dr. Permeth. Where 14 did you get that? Where did you come up with that? 15 A. Based on the science and the data, and I 16 would contend I'm not the only one who feels that 17 way. 18 Q. Tell me someone -- tell me another author 19 that feels that way. 20 MR. JAMES: Just objection to the form, and 21 if you want, you can -- 22 Q. Or another article. 23 MR. JAMES: -- you can, again, refer to your 24 report, which you do not have memorized for 25 today.</p>	<p style="text-align: right;">Page 181</p> <p>1 back-and-forth between me and you. Conduct 2 yourself appropriately. 3 MS. THOMPSON: I don't think it's 4 inappropriate to ask the witness for a citation 5 to her statements in her report, and we will go 6 off the record because -- and that's certainly -- 7 MR. JAMES: Before we go off the record, 8 we're having a continuing problem today, where 9 you are asking her questions to cite you 10 something in extremely confusing questions, and 11 then you're going to go off of the record while 12 she tries to answer your extremely confusing 13 question. Is that your position? 14 MS. THOMPSON: Let me ask you if this is a 15 confusing question. 16 MR. JAMES: Yes. 17 BY MS. THOMPSON: 18 Q. This is my question. Dr. Permeth, you state 19 in your report, your words, that to migrate, the 20 talc must -- well, for talc particles to get from 21 the perineal area to the ovaries, "the talc must 22 migrate upwards against gravity." 23 All I'm asking for is a citation or article 24 that supports that opinion. Is that confusing to 25 you?</p>

<p style="text-align: right;">Page 182</p> <p>1 A. I don't have an article -- a particular</p> <p>2 article to mention at the moment.</p> <p>3 Q. Will you have one at any time?</p> <p>4 A. It's possible. I'd have to look.</p> <p>5 Q. That's in your report or in your reliance</p> <p>6 list?</p> <p>7 A. It's very possible.</p> <p>8 Q. Okay. Well, if you find that, I would like</p> <p>9 to see it.</p> <p>10 And then the second thing I asked -- in this</p> <p>11 same paragraph is "this hypothesized process is not</p> <p>12 mechanistically logical," and I asked for the same</p> <p>13 thing, a basis for that opinion.</p> <p>14 MS. THOMPSON: And that's an inappropriate</p> <p>15 question?</p> <p>16 A. I know of no animal or human studies that</p> <p>17 have clearly shown that talc can migrate through the</p> <p>18 reproductive tract.</p> <p>19 Q. And I understand that, but that wasn't my</p> <p>20 question. I'm asking for citations to your</p> <p>21 statement --</p> <p>22 A. And I told you at this moment I don't</p> <p>23 have --</p> <p>24 Q. Let's move on.</p> <p>25 MR. JAMES: Objection to form, and she has</p>	<p style="text-align: right;">Page 184</p> <p>1 woman's normal hormone production?</p> <p>2 A. Oxytocin? Yes.</p> <p>3 Q. Did you look at the FDA statement on</p> <p>4 migration of particles?</p> <p>5 A. I'd have to look. I don't recall at the</p> <p>6 moment.</p> <p>7 Q. It's in the 2014 letter.</p> <p>8 A. Do you have a copy of the 2014 letter?</p> <p>9 Q. No. I'll just tell you that the FDA says</p> <p>10 the potential of particles to migrate through the</p> <p>11 reproductive tract reach the ovaries and the</p> <p>12 peritoneal cavity is indisputable. Do you argue</p> <p>13 with that?</p> <p>14 MR. JAMES: Objection; form. Is that an</p> <p>15 exact quote?</p> <p>16 MS. THOMPSON: I'll give you the exact</p> <p>17 quote.</p> <p>18 Q. The exact quote is: While there exists --</p> <p>19 from 2014 -- while there exists no direct proof of</p> <p>20 talc and ovarian carcinogenesis, the potential for</p> <p>21 particulates to migrate from the perineum and vagina</p> <p>22 to the peritoneal cavity is indisputable.</p> <p>23 Do you disagree with the FDA on that</p> <p>24 statement?</p> <p>25 MR. JAMES: Thank you for reading that and</p>
<p style="text-align: right;">Page 183</p> <p>1 an entire section of her report, some of which</p> <p>2 you just went through, that go through studies on</p> <p>3 the hypothesis of migration. So you can --</p> <p>4 MS. THOMPSON: And those studies say exactly</p> <p>5 the opposite of what Dr. Permuth says.</p> <p>6 MR. JAMES: This isn't a debate between you</p> <p>7 and me.</p> <p>8 MS. O'DELL: You're trying to testify to</p> <p>9 what's in her report, Scott. You know this is</p> <p>10 not --</p> <p>11 MR. JAMES: Okay.</p> <p>12 BY MS. THOMPSON:</p> <p>13 Q. Okay. Do women -- I'll ask you a few more</p> <p>14 and then we can move on to something else.</p> <p>15 Do women change positions --</p> <p>16 MR. JAMES: Objection; form.</p> <p>17 Q. -- on a regular basis?</p> <p>18 MR. JAMES: Excuse me. Objection; form and</p> <p>19 vague.</p> <p>20 A. Change positions? Could you give more</p> <p>21 context?</p> <p>22 Q. Do they lie down? Do they do yoga? Do they</p> <p>23 jump up and down? Do they run?</p> <p>24 A. Yes.</p> <p>25 Q. Okay. Is oxytocin produced as part of a</p>	<p style="text-align: right;">Page 185</p> <p>1 noting that the word is particulates. Thank you.</p> <p>2 Q. Is talc a particulate?</p> <p>3 MR. JAMES: Objection; form. And objection;</p> <p>4 you were misrepresenting the letter.</p> <p>5 MS. THOMPSON: The whole letter is about</p> <p>6 talc.</p> <p>7 Q. Do you agree?</p> <p>8 MR. JAMES: Right. That sentence wasn't.</p> <p>9 A. I haven't seen the letter.</p> <p>10 Q. All right.</p> <p>11 A. I don't know what studies they're citing</p> <p>12 that are representative of what we're talking today,</p> <p>13 which is genital application of talc.</p> <p>14 Q. Okay. The whole letter is regarding the</p> <p>15 potential for talcum powder to cause ovarian cancer.</p> <p>16 And the FDA concludes, to give you context,</p> <p>17 that a label -- they did not feel like a label</p> <p>18 should be required in 2014. So this is not talking</p> <p>19 about anything other than talc.</p> <p>20 And do you need me to read the statement</p> <p>21 again?</p> <p>22 MR. JAMES: Objection --</p> <p>23 Q. We'll move on.</p> <p>24 MR. JAMES: - to your reading I guess bits</p> <p>25 and pieces of the letter and then your summary</p>

<p style="text-align: right;">Page 186</p> <p>1 statement at the end.</p> <p>2 MS. THOMPSON: You're welcome to show her</p> <p>3 more of the letter but I read the part that was</p> <p>4 relevant to the migration issue, and there is</p> <p>5 nothing else in the letter that relates to</p> <p>6 migration of talc other than the sentence that I</p> <p>7 read you.</p> <p>8 BY MS. THOMPSON:</p> <p>9 Q. And have you not seen the FDA 2014 letter?</p> <p>10 MR. JAMES: Objection; form. Objection;</p> <p>11 incorrect.</p> <p>12 A. As mentioned, I have not looked at that.</p> <p>13 Q. Okay. That's all my question.</p> <p>14 Let's -- and you also state that the Cramer</p> <p>15 hypothesis -- or citing to Cramer on Page 123, first</p> <p>16 paragraph.</p> <p>17 A. Okay.</p> <p>18 Q. The inflammatory hypothesis suggests that</p> <p>19 talc flows upstream, lodges in the ovaries,</p> <p>20 irritates ovarian cells, promotes inflammation and</p> <p>21 immunosuppression (characterized by increased rates</p> <p>22 of cell division, DNA repair, oxidative stress and</p> <p>23 inflammatory cytokines) and in turn causes cancer.</p> <p>24 That's a paraphrase, correct?</p> <p>25 A. That's what I write there, and I'm citing</p>	<p style="text-align: right;">Page 188</p> <p>1 A. No.</p> <p>2 Q. Did you come up with it defies gravity?</p> <p>3 MR. JAMES: Objection to the form.</p> <p>4 A. Those are my words. This is talking about</p> <p>5 flows upward, upstream. If someone is standing up,</p> <p>6 that would be against gravity.</p> <p>7 Q. Okay. But women don't always stand up, do</p> <p>8 they?</p> <p>9 A. They don't always sit down or lie down, do</p> <p>10 they?</p> <p>11 Q. No, but I'm just asking for your references.</p> <p>12 Let's look at the McDonald paper that is</p> <p>13 cited in your report on Page 113.</p> <p>14 MS. THOMPSON: This will be Exhibit 20.</p> <p>15 (Permuth Exhibit 20 was marked for identification.)</p> <p>16 THE WITNESS: Thank you.</p> <p>17 BY MS. THOMPSON:</p> <p>18 Q. And you cite the McDonald paper, correct?</p> <p>19 A. Yes.</p> <p>20 Q. And your conclusion from this paper, let me</p> <p>21 know if I'm wrong, is the last sentence of that</p> <p>22 paragraph on 113 that states: The authors concluded</p> <p>23 that talc contamination of the surface of surgical</p> <p>24 pathology specimens is common and that correlative</p> <p>25 light microscopy is needed to assess the possibility</p>
<p style="text-align: right;">Page 187</p> <p>1 several studies that purport this and note that this</p> <p>2 also -- if I were to pull the articles, I bet</p> <p>3 several say talc will -- the purported hypothesis is</p> <p>4 that talc would flow upstream, as I mentioned</p> <p>5 before.</p> <p>6 Q. You feel like you could find a reference</p> <p>7 that said talc flows upstream?</p> <p>8 A. It looks like I cited four studies there, so</p> <p>9 we'd have to look at each of those.</p> <p>10 Q. I'll let you see if it's in there.</p> <p>11 A. It's the ones by Green. I don't have that</p> <p>12 article in front of me. Another is by Cramer</p> <p>13 himself. So, yeah, it's the four citations that I</p> <p>14 have. Another -- a second one is by Cramer, his</p> <p>15 1999 article, and Ness.</p> <p>16 Q. And it's your opinion that those say that</p> <p>17 talc flows upstream?</p> <p>18 A. I would believe that at least one of them</p> <p>19 does, yes.</p> <p>20 Q. Okay.</p> <p>21 A. This would not be something I would come up</p> <p>22 with.</p> <p>23 Q. Well, you came up with it defies gravity,</p> <p>24 right?</p> <p>25 MR. JAMES: Objection to the form.</p>	<p style="text-align: right;">Page 189</p> <p>1 of lab contamination, and to determine whether talc</p> <p>2 is present in lymph nodes or other tissues.</p> <p>3 Is that your take-home from the McDonald</p> <p>4 article?</p> <p>5 MR. JAMES: Just objection to the form.</p> <p>6 A. That was one take-home regarding their</p> <p>7 conclusions, but I also noted some limitations of</p> <p>8 the study and it seems that contamination was very</p> <p>9 key to what they found.</p> <p>10 Q. And -- but the authors actually ruled out</p> <p>11 the possibility of lab contamination in the paper,</p> <p>12 correct?</p> <p>13 A. I don't recall that. I think they showed</p> <p>14 surface contamination.</p> <p>15 Q. And the authors found birefringent particles</p> <p>16 that they identified as talc in lymph nodes,</p> <p>17 correct?</p> <p>18 A. They found talc and other particles.</p> <p>19 Q. All the pictures that are included are of</p> <p>20 talc, correct?</p> <p>21 A. I'd have to look again. I think they are</p> <p>22 showing talc but also magnesium and silicone.</p> <p>23 Q. And the authors concluded that talc is able</p> <p>24 to stimulate the phagocytotic potential of</p> <p>25 macrophages; is that correct?</p>

<p style="text-align: right;">Page 190</p> <p>1 MR. JAMES: Are you on a specific page?</p> <p>2 Q. Page 12: Talc is able to stimulate the</p> <p>3 phagocytotic potential of macrophages.</p> <p>4 A. I'd have to look back at the article to see</p> <p>5 the data that they claim supports that.</p> <p>6 Q. I'm just asking you whether the authors</p> <p>7 concluded that.</p> <p>8 A. They are stating that.</p> <p>9 Q. Okay. And then the authors also state on</p> <p>10 the following page: This apparent initial avidity</p> <p>11 of macrophages for talc is consistent with the</p> <p>12 morphologic findings in our case series and may help</p> <p>13 explain the inflammatory potential of talc. Full</p> <p>14 reviews of macrophage biology and inflammatory</p> <p>15 responses are available in the literature, including</p> <p>16 the phenomena of reactive oxygen species generation</p> <p>17 and oxygenation. Talc may remain long after the</p> <p>18 initial inflammatory response has run its course, as</p> <p>19 evidenced by studies showing that talc has a slow</p> <p>20 dissolution rate in tissue.</p> <p>21 That's what the authors state, correct?</p> <p>22 A. Yes.</p> <p>23 Q. And on Page 14, first sentence: The</p> <p>24 understanding of talc's ability to induce</p> <p>25 inflammation is well established.</p>	<p style="text-align: right;">Page 192</p> <p>1 Through the migration -- reading on Page 14,</p> <p>2 the first full paragraph: Through the migration of</p> <p>3 particles to lymph nodes as well as to other pelvic</p> <p>4 sites, the morphologic findings in our study</p> <p>5 indicate the likely importance of lymphatic pathways</p> <p>6 in the migration of talc. Talc may access</p> <p>7 lymphatics directly in the perineum, its typical</p> <p>8 initial exposure location, or at any point in its</p> <p>9 ascent through the genitourinary tract toward the</p> <p>10 fallopian tubes and ovaries.</p> <p>11 Does this impact your opinion that talc</p> <p>12 doesn't reach the ovaries after application to the</p> <p>13 perineum, or lymph nodes or any other pelvic</p> <p>14 structures?</p> <p>15 MR. JAMES: Objection --</p> <p>16 A. It does not --</p> <p>17 MR. JAMES: -- to the form.</p> <p>18 A. It does not change my opinion.</p> <p>19 Q. One way or the other?</p> <p>20 A. Correct.</p> <p>21 MR. JAMES: Can you just tell me where you</p> <p>22 were reading? I'm sorry, Margaret.</p> <p>23 MS. THOMPSON: On Page 14, first full</p> <p>24 paragraph.</p> <p>25 MR. JAMES: 14?</p>
<p style="text-align: right;">Page 191</p> <p>1 Do you disagree with that?</p> <p>2 A. Yes.</p> <p>3 Q. Based on what?</p> <p>4 A. Well, they're citing -- they're citing a</p> <p>5 citation about the pleural cavity. I haven't read</p> <p>6 that article.</p> <p>7 Q. My question to you is do you disagree with</p> <p>8 the statement the understanding of talc's ability to</p> <p>9 induce inflammation is well established?</p> <p>10 A. I think it's a type of foreign body reaction</p> <p>11 that talc is specifically associated with, like</p> <p>12 granulomatous foreign bodies.</p> <p>13 Q. Is that what you think these authors are</p> <p>14 referring to, is a granulomatous reaction?</p> <p>15 A. I'm not sure.</p> <p>16 Q. Well, you cite this article.</p> <p>17 A. I do. I also cite more than 600 others,</p> <p>18 too, so it's a lot to remember.</p> <p>19 Q. Well, I'm not asking you to remember it.</p> <p>20 You can look at the article, but just -- you're</p> <p>21 take-home was that talc contamination of the</p> <p>22 surface, which I don't believe would be what the</p> <p>23 authors thought should be the take-home from this</p> <p>24 article, but let's move on to some other things that</p> <p>25 they say.</p>	<p style="text-align: right;">Page 193</p> <p>1 Q. Okay. Let's look at another paper you cited</p> <p>2 in your report --</p> <p>3 MR. JAMES: I see the word ascent there.</p> <p>4 Thank you.</p> <p>5 Q. -- which is the Mandarino paper, Page 115 of</p> <p>6 your report, Exhibit 21.</p> <p>7 (Permuth Exhibit 21 was marked for identification.)</p> <p>8 BY MS. THOMPSON:</p> <p>9 Q. Why don't I let you tell me what your</p> <p>10 conclusion or what was the take-home from the</p> <p>11 Mandarino article, the reason you decided to include</p> <p>12 it?</p> <p>13 A. Well, I included it because I tried to have</p> <p>14 a balanced view of all the literature that's out</p> <p>15 there with the -- especially with some in vitro</p> <p>16 studies.</p> <p>17 MR. JAMES: Are we on Page 115 of your</p> <p>18 report?</p> <p>19 MS. THOMPSON: Yes.</p> <p>20 THE WITNESS: Yeah.</p> <p>21 A. I think, you know, they're trying to look at</p> <p>22 the effects of talc on macrophages and their ability</p> <p>23 to slow the growth of ovarian cancer in mouse</p> <p>24 models, and I recall, in looking at the data, some</p> <p>25 limitations of it, which compromised the ability to</p>

<p style="text-align: right;">Page 194</p> <p>1 draw strong conclusions about it.</p> <p>2 They used really high concentrations of talc</p> <p>3 and estradiol. The toxicity analysis based on dose</p> <p>4 response didn't reveal significant toxicity to the</p> <p>5 macrophages alone or in combination with estradiol.</p> <p>6 Expression profiling was not comprehensive, didn't</p> <p>7 evaluate whether changes were actually due to talc</p> <p>8 itself. The effects as shown appear to be additive</p> <p>9 but it didn't support a mechanism of immune</p> <p>10 suppression, and the model they used doesn't seem to</p> <p>11 resemble human cells.</p> <p>12 So in terms of conclusions and what it added</p> <p>13 to the literature, I don't feel that there was</p> <p>14 anything substantive that changed my opinions</p> <p>15 on talc.</p> <p>16 Q. Did you include the authors' conclusions?</p> <p>17 A. Let me look at what the authors' conclusions</p> <p>18 are.</p> <p>19 Yes, I think I incorporate them into my</p> <p>20 assessment where they seem to suggest that these --</p> <p>21 this exposure compromises functions of macrophages.</p> <p>22 Q. Well, let's actually read what the authors</p> <p>23 conclude. The authors conclude that: We found that</p> <p>24 murine ovarian surface epithelial cells, MOSEC, a</p> <p>25 prototype of certain forms of ovarian cancer, were</p>	<p style="text-align: right;">Page 196</p> <p>1 happen in humans.</p> <p>2 Q. And this is strictly in vitro study,</p> <p>3 correct?</p> <p>4 A. Yeah.</p> <p>5 Q. And is the -- if, in murine epithelial</p> <p>6 cells, it did compromise immunosurveillance</p> <p>7 function, that would be important to your opinion,</p> <p>8 correct?</p> <p>9 MR. JAMES: Just objection to form.</p> <p>10 A. Again, these cells are not representative of</p> <p>11 human ovarian cancer cells.</p> <p>12 Q. Well, at least the authors say that they're</p> <p>13 a prototype of certain forms of ovarian cancer?</p> <p>14 A. They say that. I think there could have</p> <p>15 been other models that should have been used.</p> <p>16 Q. And one more cell study that you cited, the</p> <p>17 Emi paper, we'll mark as Exhibit 22.</p> <p>18 THE WITNESS: Thank you.</p> <p>19 THE COURT REPORTER: You're welcome.</p> <p>20 (Permuth Exhibit 22 was marked for identification.)</p> <p>21 BY MS. THOMPSON:</p> <p>22 Q. And what was your take-home from the Emi</p> <p>23 paper?</p> <p>24 A. So it seems, if I remember, this is the same</p> <p>25 group and they try to demonstrate similar things,</p>
<p style="text-align: right;">Page 195</p> <p>1 present in larger numbers after co-culture with</p> <p>2 macrophages treated to a combination of talc and</p> <p>3 estradiol than to either agent alone or vehicle.</p> <p>4 Control particles did not have this effect.</p> <p>5 Co-exposure of macrophages to talc and estradiol has</p> <p>6 led to increased production of reactive oxygen</p> <p>7 species and changes in expression of macrophage</p> <p>8 genes pertinent to cancer development and</p> <p>9 immunosurveillance. These findings suggest that</p> <p>10 in vitro exposure to talc, particularly in a</p> <p>11 high-estrogen environment, may compromise</p> <p>12 immunosurveillance functions of macrophages and</p> <p>13 prompt further studies to elucidate this mechanism.</p> <p>14 The authors' conclusion is significantly</p> <p>15 different from yours, correct?</p> <p>16 A. I -- in this paragraph I do report on their</p> <p>17 conclusion in the fourth or fifth sentence: The</p> <p>18 authors reported that co-exposure of macrophages to</p> <p>19 talc and estradiol led to increased production of</p> <p>20 reactive oxygen species and changes in gene</p> <p>21 expression.</p> <p>22 And then I go on to indicate why I'm</p> <p>23 cautious about their conclusions and the limitations</p> <p>24 of their study and the fact that as I look at this</p> <p>25 even more, it's not representative of what might</p>	<p style="text-align: right;">Page 197</p> <p>1 but here again, what they're looking at, the cell</p> <p>2 lines are not representative of human ovarian cancer</p> <p>3 cells.</p> <p>4 Q. Okay.</p> <p>5 A. So I don't put much weight into this study.</p> <p>6 Q. And the authors state that epigenomic</p> <p>7 analysis reveal that both types of particles, with</p> <p>8 or without estrogen, induced a substantial DNA</p> <p>9 methylation change.</p> <p>10 If those findings were correct, that would</p> <p>11 be significant in regarding to whether there is a</p> <p>12 plausible mechanism for talc and ovarian cancer.</p> <p>13 MR. JAMES: Just objection to the form and</p> <p>14 the hypothetical.</p> <p>15 A. With anything that would come out, I'd</p> <p>16 consider it and then make an assessment.</p> <p>17 Q. And at least your conclusion after looking</p> <p>18 at the cell studies that you looked at were: Taken</p> <p>19 together, these lines of in vitro and in vivo work</p> <p>20 are highly speculative.</p> <p>21 What do you mean by speculative in that</p> <p>22 context, the findings or the studies?</p> <p>23 A. There are some methodological concerns,</p> <p>24 especially -- we didn't talk about the Saed</p> <p>25 articles, that team, but, yeah, the methods are</p>

<p style="text-align: right;">Page 198</p> <p>1 highly speculative, as are the interpretations, and 2 as I said before and as I say in this sentence, they 3 are not representative of the processes in humans, 4 and nothing that I've seen shows that talc is 5 genotoxic, that it causes mutation, that it induces 6 ovarian cancer. 7 Q. Let's talk about asbestos. 8 A. Okay. 9 Q. Do you have an opinion as to whether 10 asbestos is genotoxic? 11 A. It depends on the context. I do feel 12 asbestos is a carcinogen -- is a carcinogen for 13 certain cancer types. 14 Q. Is it genotoxic? 15 A. And is toxic. 16 Q. In the cancers that asbestos causes, is it 17 genotoxic? 18 MR. JAMES: Just objection to the form. 19 A. I would consider it to be for certain 20 cancers. 21 Q. Okay. Does asbestos and the cancers that it 22 causes cause mutations? 23 A. I have not looked into that area to be able 24 to comment on that more. 25 Q. So you did not look into the mechanism by</p>	<p style="text-align: right;">Page 200</p> <p>1 A. What I didn't do is get into the various 2 constituents of the different types of talc or the 3 different types of asbestos. That was not what I 4 focused on. 5 Q. Do you know what the structures of talc are? 6 MR. JAMES: Object to form. 7 A. That is something that I would defer to a 8 mineralogist to talk about rather than myself. I 9 looked at the bulk of the data and the associations 10 of talc as a substance and not constituents and 11 ovarian cancer. 12 Q. You know that IARC 2012 concludes that not 13 only does asbestos causes ovarian cancer, but talc 14 in a fiber form causes asbestos [sic]. Did you see 15 that? 16 MR. JAMES: Just objection -- excuse me. 17 Objection to the form; assumes facts not in 18 evidence. 19 Q. Did you see that talc in an asbestiform 20 habit is carcinogenic, Group 1 carcinogenic, 21 including ovarian cancer, in the 2012 IARC report? 22 MR. JAMES: Same objection. 23 A. I think there are limitations of those 24 assessments, which I talk about in my report. 25 Q. And that wasn't my question. Does IARC, in</p>
<p style="text-align: right;">Page 199</p> <p>1 which asbestos causes cancer? 2 A. It -- I do not believe it causes ovarian 3 cancer, and that was my focus, and the studies I 4 came across did not look at mechanism and certainly 5 didn't look at mutation profiles. 6 Q. My question, though, is did you look at the 7 mechanism by which asbestos causes the cancers that 8 you think it causes? 9 MR. JAMES: Just objection to form. 10 A. I did not explore that area. 11 Q. Did you look at IARC 2010? 12 A. Yes. 13 Q. Did you look at IARC 2012? 14 A. Yes. 15 Q. And you did not see any mechanistic 16 discussion in those papers, in those treatises? 17 A. I know there is mechanistic discussions. 18 That wasn't the focus of what I looked at. 19 Q. So you did not look at any mechanistic 20 discussion in IARC 2012? 21 MR. JAMES: Just objection to form. 22 A. I recall looking at that. I can't recall 23 specifics right now, and that is not a focus of what 24 I talked about in my report. 25 Q. What is fibrous talc?</p>	<p style="text-align: right;">Page 201</p> <p>1 2012, conclude that talc in an asbestiform habit is 2 a Group 1 carcinogen and causes ovarian cancer? 3 MR. JAMES: Objection to the form. 4 Objection, she's already told you she's not 5 offering expert opinions on specific mineralogy 6 questions, and objection -- she just referred to 7 your report. If you want to take time again to 8 read your report, you're entitled to do so. 9 Q. Please feel free. 10 A. Could you relay what your specific question 11 is? 12 Q. Well, do you know what talc in an 13 asbestiform habit means? 14 A. I guess I'll say again that is not my area 15 of expertise. I considered the substance as a whole 16 in their associations with ovarian cancer risk, so 17 I'm not going to be talking about how this one fiber 18 type differs from another, or habitus, whatever it 19 may be. 20 Q. But do you know that IARC 2012 concludes 21 that talc in an asbestiform habit is a Group 1 22 carcinogen and causes ovarian cancer? 23 MR. JAMES: Just objection to the form; 24 assumes facts not in evidence. 25 MS. THOMPSON: Okay. I guess we need to get</p>

<p style="text-align: right;">Page 202</p> <p>1 IARC out.</p> <p>2 A. We can look at it.</p> <p>3 MR. JAMES: And objection; asked and</p> <p>4 answered.</p> <p>5 Q. We can read it exactly.</p> <p>6 Do you know that IARC 2012 discussed the</p> <p>7 route of exposure to talc and asbestos as being the</p> <p>8 perineal use of talc?</p> <p>9 MR. JAMES: Objection to form.</p> <p>10 Q. Okay. I'll read both. I'll read both.</p> <p>11 A. Do you have a copy of them?</p> <p>12 Q. I'm going to read it. I don't have a copy</p> <p>13 of IARC.</p> <p>14 MS. THOMPSON: Oh, we do. Do we have -- all</p> <p>15 right. We have copies. All right. We'll mark</p> <p>16 this 23.</p> <p>17 MS. O'DELL: I will say, for the record,</p> <p>18 it's a subset because it's so large.</p> <p>19 (Permuth Exhibit 23 was marked for identification.)</p> <p>20 BY MS. THOMPSON:</p> <p>21 Q. Talc Containing Asbestiform --</p> <p>22 MS. O'DELL: Where are you, Margaret?</p> <p>23 MS. THOMPSON: Page 230, Section 1.6, and</p> <p>24 were about four or five lines in.</p> <p>25 Q. Talc may form true mineral fibers that are</p>	<p style="text-align: right;">Page 204</p> <p>1 MR. JAMES: Okay.</p> <p>2 Q. What are the conclusions of this monograph,</p> <p>3 do you know?</p> <p>4 MR. JAMES: Objection to the form and</p> <p>5 whatever is going on here.</p> <p>6 MS. THOMPSON: I read her --</p> <p>7 A. There's a lot to this material. I've told</p> <p>8 you that I am not an expert on the constituents of</p> <p>9 asbestos or talc and the different types of fibers.</p> <p>10 I've looked at the epidemiologic data and I'm happy</p> <p>11 to discuss that.</p> <p>12 Q. We're going to. I asked you what the</p> <p>13 conclusions of the IARC Working Group in 2012 are?</p> <p>14 MR. JAMES: What did you read? I'm very</p> <p>15 confused as to what we're doing. Where did you</p> <p>16 read, from her report or from the monograph?</p> <p>17 MS. THOMPSON: From IARC, and I said on</p> <p>18 Page 230, talc may form --</p> <p>19 MR. JAMES: Oh, now we're on 230. Okay. I</p> <p>20 thought you said 219.</p> <p>21 MS. THOMPSON: And then I went to Page 219.</p> <p>22 MR. JAMES: It's a little hard because there</p> <p>23 are missing pages. Okay. Go ahead.</p> <p>24 MS. THOMPSON: Are you less confused now?</p> <p>25 MR. JAMES: No, but let's keep going.</p>
<p style="text-align: right;">Page 203</p> <p>1 asbestiform in habit.</p> <p>2 And that's something that you're not going</p> <p>3 to testify to, correct?</p> <p>4 MR. JAMES: Do you see where she is?</p> <p>5 THE WITNESS: Yes, I do.</p> <p>6 Q. And --</p> <p>7 MS. O'DELL: She didn't answer.</p> <p>8 A. Correct.</p> <p>9 Q. Okay. And in the -- on the first page, Page</p> <p>10 219, it states --</p> <p>11 A. So do I just have excerpts of this?</p> <p>12 Q. You have all of the asbestos section.</p> <p>13 A. But it goes from 219 to 230.</p> <p>14 MS. O'DELL: It's only excerpts because of</p> <p>15 the pages.</p> <p>16 Q. That's all we have.</p> <p>17 MS. O'DELL: If you wanted other pages --</p> <p>18 Q. Yeah, sorry. The questions I'll be asking</p> <p>19 you are from this.</p> <p>20 And it states in the middle of that</p> <p>21 paragraph: The conclusions reached in this</p> <p>22 Monograph about asbestos and its carcinogenic risks</p> <p>23 apply to these six types of fibers wherever they are</p> <p>24 found, and that includes talc-containing asbestiform</p> <p>25 fibers.</p>	<p style="text-align: right;">Page 205</p> <p>1 MS. THOMPSON: Okay. I don't want you to be</p> <p>2 confused. We can go over it again.</p> <p>3 MR. JAMES: Page 230, and what part did you</p> <p>4 read?</p> <p>5 MS. THOMPSON: In the section on "Talc</p> <p>6 containing asbestiform fibres."</p> <p>7 MR. JAMES: Okay.</p> <p>8 MS. THOMPSON: I read that talc may form --</p> <p>9 also form true mineral fibers that are</p> <p>10 asbestiform in habit.</p> <p>11 MR. JAMES: Is this anywhere in her report?</p> <p>12 MS. THOMPSON: IARC 2012 is.</p> <p>13 MR. JAMES: Is this commentary in there?</p> <p>14 What are we asking her to comment on? She's just</p> <p>15 told you that she's not weighing into questions</p> <p>16 that are asbestiform or nonasbestiform.</p> <p>17 MS. THOMPSON: She's weighing in as to</p> <p>18 whether asbestos can cause ovarian cancer.</p> <p>19 MR. JAMES: Okay.</p> <p>20 MS. THOMPSON: And I'm talking about the</p> <p>21 IARC monograph in 2012 and what it concludes. I</p> <p>22 believe that's totally within her opinions.</p> <p>23 MR. JAMES: I'm sorry. Go back -- start</p> <p>24 over. Sorry.</p> <p>25 BY MS. THOMPSON:</p>

<p style="text-align: right;">Page 206</p> <p>1 Q. Okay. We are in the IARC 2012 monograph, 2 correct? 3 A. Yes. 4 Q. All right. And we know that this monograph 5 refers to asbestos, correct? 6 A. Uh-huh. 7 Q. And I was asking you, do you know that this 8 monograph also addresses talc in an asbestiform 9 habit, and I asked you if you knew what that meant. 10 Do you? 11 A. And that's why we're looking at 1.6, and 12 I told -- Section 1.6, and I told you I am not well 13 versed on various fiber types of talc or asbestos or 14 asbestiform fibers. That is not what my focus was. 15 I was looking at the epidemiology regarding the 16 whole substance of talc and what may or may not be 17 in it. 18 Q. Epidemiology includes mechanism, correct? 19 MR. JAMES: Objection to the form there. 20 Q. Does epidemiology include an understanding 21 of the mechanism by which something causes -- 22 A. It can. 23 MR. JAMES: Objection to the form. 24 Q. Okay. Is mechanism part of Bradford Hill 25 biological plausibility?</p>	<p style="text-align: right;">Page 208</p> <p>1 Q. Okay. 2 A. Yeah. 3 Q. And I believe the next question I asked you, 4 and it's not -- I'm not asking whether you agree 5 with IARC 2012. I said what are the conclusions 6 from the IARC Working Group from the 2012 monograph 7 on asbestos and talc with asbestiform fibers? 8 A. Well -- 9 MR. JAMES: Objection; form. 10 A. Being that you keep repeating those 11 sentences on Page 219, which talks about their 12 conclusions, I don't know if you want me to restate 13 what's typed on this page. 14 Q. No. What -- 15 A. I don't -- there is nothing here that is 16 adding to what my opinions are in this case 17 scientifically. 18 Q. Does the 2012 IARC monograph conclude that 19 asbestos and talc-containing asbestiform fibers can 20 cause mesothelioma, lung cancer, and ovarian cancer? 21 MR. JAMES: Objection to the form of that 22 question. Are you reading that from somewhere? 23 MS. THOMPSON: No, I'm saying it. 24 Q. Do you understand my question? 25 A. I understand it. This --</p>
<p style="text-align: right;">Page 207</p> <p>1 A. Yes. 2 MR. JAMES: Objection to the form. 3 Q. And then we went to the conclusion that this 4 refers to all six types of asbestos fibers, wherever 5 they are found, and that includes talc-containing 6 asbestiform fibers. 7 MR. JAMES: Where are you now? You're just 8 jumping. Where are you? 9 MS. THOMPSON: We're in the same two places 10 we've been all along. 11 MR. JAMES: You just said you went to the 12 conclusion. Where are we going? 13 MS. THOMPSON: No, I went to 230 and read 14 about -- 15 MR. JAMES: Just hold on. 16 MS. THOMPSON: -- talc-containing 17 asbestiform fibers. I went, in the copy I gave 18 you, I went to the page before, but it's 219: 19 The conclusions reached in this monograph about 20 asbestos and its carcinogenic risk apply to those 21 six types of fibers wherever they are found, and 22 that includes talc-containing asbestiform fibers. 23 BY MS. THOMPSON: 24 Q. Okay. Are we okay so far? 25 A. I guess. I'm unclear on the point but --</p>	<p style="text-align: right;">Page 209</p> <p>1 Q. Or do you know? 2 A. This is the first time -- as we began this 3 discussion I brought up, say, lung cancer, and I 4 mentioned that I don't feel -- that I disagree that 5 asbestos causes ovarian cancer, so... 6 Q. I understand. The answer is nonresponsive. 7 Does the IARC Working Group conclude that 8 asbestos and asbestiform fibers cause ovarian 9 cancer? 10 MR. JAMES: Just objection to the form there 11 and the wording. Your wording keeps changing 12 also. Just so you know, there you said asbestos 13 and asbestiform fibers. 14 MS. THOMPSON: I believe I said talc 15 with asbestiform fibers. 16 MR. JAMES: No, you didn't. 17 MS. THOMPSON: Let me repeat it then. 18 MR. JAMES: It keeps changing. 19 MS. THOMPSON: Oh, it does not. 20 MS. O'DELL: Have you ever sat in one of 21 your partners' depositions, Mark Hegarty? 22 MR. JAMES: Thank you, Leigh. This is not 23 your portion of the depo. 24 MS. THOMPSON: It may be. We may repeat it. 25 BY MS. THOMPSON:</p>

<p style="text-align: right;">Page 210</p> <p>1 Q. Do you know what IARC 2012 concludes?</p> <p>2 MR. JAMES: Objection to the form.</p> <p>3 MS. THOMPSON: I'm trying to just get it in</p> <p>4 a way that's not objectionable. There doesn't</p> <p>5 seem to be anything.</p> <p>6 A. There are bits and pieces of this document.</p> <p>7 I'm not seeing -- I'm seeing the first page. I'm</p> <p>8 not seeing a last page with conclusions. If you are</p> <p>9 asking me to tell you what the conclusions are --</p> <p>10 Q. Did you include IARC 2012 in your report?</p> <p>11 A. I did, and --</p> <p>12 Q. Do you want to look and see what IARC</p> <p>13 concluded from your report? Please feel free.</p> <p>14 A. I'm trying to make sure I reference the</p> <p>15 right IARC paper.</p> <p>16 I'm looking now to see if Citation 450 is</p> <p>17 the 2012 year. It is not. 449.</p> <p>18 Q. Yeah, it's 449.</p> <p>19 A. Yeah. They say a causal association between</p> <p>20 exposure to asbestos and ovarian cancer is clearly</p> <p>21 established, and I disagree with that statement. I</p> <p>22 feel like it's a strong statement.</p> <p>23 Q. And I was asking you -- we can get to</p> <p>24 whether you agree or not. I was asking what does</p> <p>25 IARC 100C in 2012 conclude, and you agree that it --</p>	<p style="text-align: right;">Page 212</p> <p>1 repeat it.</p> <p>2 A. I talked about or I mentioned occupational</p> <p>3 and environmental exposure.</p> <p>4 Q. Okay. All right. Let's go to 232, "Human</p> <p>5 exposure, Exposure of the general population." Did</p> <p>6 you read this when you looked at 2012 IARC?</p> <p>7 A. Exposure of the general population, yes.</p> <p>8 Q. And it states: Consumer products (for</p> <p>9 example, cosmetic, pharmaceuticals) are the primary</p> <p>10 sources of exposure to talc for the general</p> <p>11 population. Inhalation and dermal contact (i.e.</p> <p>12 through perineal application of talc particles</p> <p>13 [sic]) are the primary routes of exposure.</p> <p>14 So IARC 2012 considers exposure to talc</p> <p>15 through perineal application talcum powders,</p> <p>16 correct?</p> <p>17 MR. JAMES: Object to the form. Thank you.</p> <p>18 A. You were asking about asbestos a moment ago.</p> <p>19 Q. In fibrous talc, but this exposure to talc</p> <p>20 is in the asbestos monograph, you agree?</p> <p>21 A. Understood, but I was confused by your</p> <p>22 question.</p> <p>23 Q. Okay. Did you not understand that -- let me</p> <p>24 ask you this question. Is there such a thing as</p> <p>25 talc that does not contain talc fibers, or do you</p>
<p style="text-align: right;">Page 211</p> <p>1 well, let's go to Page 294 of the document you have.</p> <p>2 A. Okay. I'm on 294.</p> <p>3 Q. And under Evaluation: There is sufficient</p> <p>4 evidence in humans for the carcinogenicity of all</p> <p>5 forms of asbestos. Asbestos causes mesothelioma and</p> <p>6 cancer of the lung, larynx and ovary.</p> <p>7 And you disagree with IARC's conclusion, I</p> <p>8 understand that, but that's what IARC concludes,</p> <p>9 correct?</p> <p>10 A. Yes, that's what they conclude.</p> <p>11 Q. And looking on that same page, under</p> <p>12 Synthesis, and there is a -- I would call a robust</p> <p>13 discussion of the mechanistic basis for asbestos</p> <p>14 carcinogenicity. Did you look at this?</p> <p>15 A. Yes, and I would say we're talking apples</p> <p>16 and oranges in term of route of administration when</p> <p>17 we're talking about asbestos. Most studies really</p> <p>18 refer to occupational or environmental exposure, not</p> <p>19 perineal exposure, so very different.</p> <p>20 Q. Well, let's look at that. Turn to Page 232.</p> <p>21 And is it your opinion that IARC 2012 only deals</p> <p>22 with occupational exposure?</p> <p>23 MR. JAMES: Objection; misstates her</p> <p>24 testimony.</p> <p>25 Q. What was your testimony? Go ahead and</p>	<p style="text-align: right;">Page 213</p> <p>1 know?</p> <p>2 MR. JAMES: Just objection to form.</p> <p>3 A. As I stated several times, I'm not here to</p> <p>4 talk about what is in talc fibers, no fibers,</p> <p>5 asbestiform, et cetera. That's not what I'm here to</p> <p>6 talk about.</p> <p>7 Q. Do you have an opinion as to why IARC would</p> <p>8 include the exposure by perineal application of</p> <p>9 talcum powders in their monograph on asbestos and</p> <p>10 talc fibers?</p> <p>11 MR. JAMES: Just objection; speculation.</p> <p>12 A. Yes.</p> <p>13 Q. What would be the reason?</p> <p>14 A. Because of concern that talc may be</p> <p>15 contaminated by asbestos.</p> <p>16 Q. What do you mean by talc could be</p> <p>17 contaminated by asbestos?</p> <p>18 A. I'm not sure. Again, this is where -- you</p> <p>19 know, I know in this monograph they're looking at</p> <p>20 many things, many constituents, and that's not what</p> <p>21 I'm here to talk about today.</p> <p>22 Q. Well, I believe they're talking about six</p> <p>23 types of asbestos --</p> <p>24 A. Yes.</p> <p>25 Q. -- and talc in -- containing asbestiform</p>

<p style="text-align: right;">Page 214</p> <p>1 fibers. Are they talking about other things in 2 this?</p> <p>3 MR. JAMES: Just objection to form.</p> <p>4 A. Yeah.</p> <p>5 Q. What?</p> <p>6 A. They're talking about minerals or metals, 7 fibers, dust, many things in this monograph.</p> <p>8 Q. Where are you?</p> <p>9 A. The title of the monograph.</p> <p>10 Q. Well, we're in the section on asbestos -- on 11 asbestos. You're in another section of the 100C. 12 Did you know that when you reviewed 100C, 2012?</p> <p>13 A. I know there is many sections of it. I was 14 just clarifying.</p> <p>15 Q. And we're looking at the asbestos section, 16 correct?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. And on the page -- I believe while 19 we're on IARC, that you looked at the Reid paper in 20 2009?</p> <p>21 A. Yes.</p> <p>22 Q. And that was supportive of your opinion that 23 talc does not cause ovarian cancer, correct?</p> <p>24 A. Correct.</p> <p>25 Q. Was the reason because of misclassification</p>	<p style="text-align: right;">Page 216</p> <p>1 A. I believe it's a highly selective subset of 2 the environmental and occupational cases, so there 3 are some limitations of what they talk about here.</p> <p>4 Q. Is it faulty science that IARC reviewed, 5 flawed science, I guess is the word?</p> <p>6 A. There are limitations to what they talk 7 about in this, in their assessment.</p> <p>8 Q. Do they examine faulty flawed science to 9 make their conclusion in this monograph?</p> <p>10 A. There are fundamental limitations of the 11 design and the interpretation of those studies.</p> <p>12 Q. And that's in Dr. Permuth's opinion, 13 correct?</p> <p>14 A. It's Dr. Permuth's thoughts based on the 15 science, as well as others that I talk about in my 16 report on Page 46. Slomovitz does a nice job of 17 questioning IARC's assertions in this. Also, I talk 18 about the IARC Working Group reviewing papers that 19 had a nonsignificant risk of ovarian cancer but they 20 didn't include them in the consensus opinion.</p> <p>21 Q. Okay. We'll look at Slomovitz in a minute. 22 Did Slomovitz say that talcum powder with asbestos 23 is safe?</p> <p>24 MR. JAMES: Just objection to form.</p> <p>25 A. I don't recall a statement saying talc is</p>
<p style="text-align: right;">Page 215</p> <p>1 of peritoneal mesothelioma?</p> <p>2 A. That's part of the reason, yes.</p> <p>3 Q. Let's look at Page 255 of the IARC Working 4 Group monograph. In the middle of the page, first 5 column, IARC at least addresses that issue. It 6 says: To address the possibility that some 7 diagnosed cases of ovarian cancer in this cohort 8 might in fact have been cases of peritoneal 9 mesothelioma, Reid, et al., 2009, examined 10 pathologic material from nine of their cases. The 11 diagnosis of ovarian cancer was sustained in every 12 case.</p> <p>13 So at least IARC felt that in the nine cases 14 that Reid examined, none were misdiagnosed as 15 primary peritoneal cancer, correct?</p> <p>16 A. I'd have to look back at the article about 17 that.</p> <p>18 Q. Okay. I think my question was just about 19 what IARC determined.</p> <p>20 A. They say that there but I don't recall that 21 in the article itself.</p> <p>22 Q. I was asking what IARC says.</p> <p>23 And you will agree this is a comprehensive 24 review of the subject matter, correct?</p> <p>25 MR. JAMES: Objection to form, please.</p>	<p style="text-align: right;">Page 217</p> <p>1 safe.</p> <p>2 Q. Okay. From anyone?</p> <p>3 MR. JAMES: Objection to the form.</p> <p>4 A. I don't recall seeing that.</p> <p>5 Q. Okay. We'll look at Slomovitz in a minute. 6 And one more thing on IARC 2012, on Page 294, just 7 before the conclusion that we read. There is a 8 section on the general mechanisms that have been 9 proposed for the carcinogenicity of asbestos fibers. 10 Do you see that?</p> <p>11 A. Could you say the page number again?</p> <p>12 Q. 294.</p> <p>13 A. Yes. Okay.</p> <p>14 Q. And it gives two mechanisms, one is direct 15 interaction between asbestos fibers and target cells 16 in vitro. In this mechanism, the direct mechanism, 17 asbestos and erionite fibers have been shown to 18 generate free radicals that directly induce 19 genotoxicity as assessed by DNA breaks and oxidized 20 bases in DNA.</p> <p>21 Asbestos fibers have also been shown to 22 interfere with the mitotic apparatus by direct 23 physical interaction resulting in aneuploidy and 24 polyploidy.</p> <p>25 Does this inform your opinion as to the</p>

<p style="text-align: right;">Page 218</p> <p>1 mechanism by which asbestos can cause cancer?</p> <p>2 A. As I mentioned earlier, I did mention</p> <p>3 genotoxicity and you wrote it down, so I</p> <p>4 acknowledged that.</p> <p>5 Q. All right.</p> <p>6 A. I'd note also, though, there is no citations</p> <p>7 here in this section and I don't recall any of these</p> <p>8 studies being specific to ovarian cancer.</p> <p>9 Q. Well, we can go to Figure 4.1 and 4.2. Oh,</p> <p>10 it's not included in this. All right.</p> <p>11 And then there is the indirect mechanism:</p> <p>12 In laboratory animals, asbestos fibers have been</p> <p>13 shown to induce macrophage activation and persistent</p> <p>14 inflammation that generate reactive oxygen and</p> <p>15 nitrogen species contributing to tissue injury,</p> <p>16 genotoxicity, and epigenetic alterations.</p> <p>17 Persistent inflammation and chronic oxidative stress</p> <p>18 have been associated with the activation of</p> <p>19 intracellular signalling pathways, resistance to</p> <p>20 apoptosis, and stimulation of cell proliferation.</p> <p>21 Do you agree that at least some of the</p> <p>22 mechanisms discussed in the IARC monograph on</p> <p>23 asbestos are those that researchers found when talc</p> <p>24 was looked at in both animal and in vitro studies?</p> <p>25 MR. JAMES: Objection to form.</p>	<p style="text-align: right;">Page 220</p> <p>1 Page 133, I believe.</p> <p>2 A. Yes.</p> <p>3 (Discussion off the record.)</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. You state on Page 134, actually, in your</p> <p>6 conclusions regarding Health Canada: Taken</p> <p>7 together, the conclusions drawn from the Health</p> <p>8 Canada report are unfounded.</p> <p>9 Is that your opinion today?</p> <p>10 A. Yes.</p> <p>11 Q. And the second part of that sentence: It is</p> <p>12 noteworthy that this report does not explicitly</p> <p>13 conclude that talc causes ovarian cancer as</p> <p>14 plaintiffs' experts suggest that it did.</p> <p>15 Is that still your opinion?</p> <p>16 A. Yes.</p> <p>17 Q. Can you tell me what you're referring to on</p> <p>18 that statement?</p> <p>19 A. I think as written, I don't recall this</p> <p>20 report concluded that talc causes ovarian cancer.</p> <p>21 Q. Okay. Let's just go through -- well, let me</p> <p>22 ask you something else.</p> <p>23 Another concern you had was that it cited</p> <p>24 expert reports created for litigation rather than</p> <p>25 focusing on peer-reviewed literature.</p>
<p style="text-align: right;">Page 219</p> <p>1 A. I believe most of what they're talking about</p> <p>2 likely relates to lung cancer or other cancers known</p> <p>3 to be associated with asbestos exposure.</p> <p>4 Q. Does their mechanism for asbestos and</p> <p>5 carcinogenicity state that it's only the</p> <p>6 carcinogenic mechanism for lung cancer?</p> <p>7 A. It does not say that. I just said I bet</p> <p>8 that's the majority of the studies.</p> <p>9 MS. THOMPSON: Okay. Yeah. Let's take a</p> <p>10 quick break.</p> <p>11 (Recess from 3:07 p.m. until 3:15 p.m.)</p> <p>12 (Permuth Exhibit 24 was marked for identification.)</p> <p>13 MS. THOMPSON: Back on the record. We've</p> <p>14 just marked Health Canada Screening Assessment as</p> <p>15 Exhibit 24.</p> <p>16 BY MS. THOMPSON:</p> <p>17 Q. And you have seen this document, correct?</p> <p>18 A. Yes.</p> <p>19 Q. I'm hoping we can go through this rather</p> <p>20 quickly, because I'm just going to ask you</p> <p>21 statements, point you to the page and ask you if you</p> <p>22 agree or disagree, if that's okay.</p> <p>23 A. Understood.</p> <p>24 Q. But before, I want to ask you about a couple</p> <p>25 of statements in your report, and that would be on</p>	<p style="text-align: right;">Page 221</p> <p>1 Is it your opinion that expert reports were</p> <p>2 given more weight than peer-reviewed literature in</p> <p>3 this approximately 50-page document with 250</p> <p>4 references?</p> <p>5 A. I believe they were given a lot of weight.</p> <p>6 I can't quantify how much or what proportion but it</p> <p>7 was unique that they were relying on the plaintiff</p> <p>8 expert reports rather than solely on peer-reviewed</p> <p>9 literature.</p> <p>10 Q. Are you aware that Johnson & Johnson met</p> <p>11 with Health Canada following the draft assessment</p> <p>12 and presented them with a 5,000-page treatise on why</p> <p>13 talc was safe?</p> <p>14 A. I am not aware of that.</p> <p>15 Q. Are you aware -- and are you aware that</p> <p>16 Health Canada did not revise their draft assessment</p> <p>17 based on those meetings?</p> <p>18 A. I'm not aware of that.</p> <p>19 Q. Are you aware that Johnson & Johnson</p> <p>20 submitted the expert reports from both sides and</p> <p>21 that Health Canada considered the expert reports</p> <p>22 from both sides?</p> <p>23 MR. JAMES: Objection to form.</p> <p>24 A. I'm not aware of that.</p> <p>25 Q. Okay. I'll give you the page, I'll just</p>

<p style="text-align: right;">Page 222</p> <p>1 read a short excerpt, and my question will be do you</p> <p>2 agree or disagree. Okay?</p> <p>3 A. Okay.</p> <p>4 Q. On Page iii.</p> <p>5 A. I'm there.</p> <p>6 Q. Next to the last paragraph: With regards to</p> <p>7 perineal exposure, analyses of the available human</p> <p>8 studies in the peer-reviewed literature indicate a</p> <p>9 consistent and statistically significant positive</p> <p>10 association between perineal exposure to talc and</p> <p>11 ovarian cancer.</p> <p>12 Do you agree with that statement?</p> <p>13 A. No. It really should comment on the</p> <p>14 prospective study design and how there is</p> <p>15 inconsistency between that and the case-control</p> <p>16 studies, and even within case-control studies there</p> <p>17 is inconsistency.</p> <p>18 Q. And the next sentence: The available data</p> <p>19 are indicative of a causal effect.</p> <p>20 A. Disagree completely.</p> <p>21 Q. But you do agree that Canada does give a</p> <p>22 causal effect opinion in its draft assessment?</p> <p>23 MR. JAMES: Objection to the form; misstates</p> <p>24 the document.</p> <p>25 A. I had thought you had asked if I agree or</p>	<p style="text-align: right;">Page 224</p> <p>1 supports causation? Is that not a causality</p> <p>2 statement?</p> <p>3 MR. JAMES: Objection to the form there.</p> <p>4 A. I guess I'm still confused as to what you're</p> <p>5 asking.</p> <p>6 Q. Is it your --</p> <p>7 A. They are saying available data are</p> <p>8 indicative of a causal effect.</p> <p>9 Q. Okay. Are you saying that Health Canada</p> <p>10 said that talcum powder use does not cause ovarian</p> <p>11 cancer?</p> <p>12 MR. JAMES: Objection to the form.</p> <p>13 Q. I'm just trying to figure out how that is</p> <p>14 not a conclusion that talc causes ovarian cancer.</p> <p>15 MR. JAMES: Objection to the form.</p> <p>16 Q. And yes, it's based on their data and their</p> <p>17 review, I agree with that.</p> <p>18 MR. JAMES: Objection to the form. The</p> <p>19 sentence speaks for itself.</p> <p>20 Q. Is it still your opinion that the</p> <p>21 plaintiffs' experts suggest that Health Canada</p> <p>22 concludes that talc causes ovarian cancer and it</p> <p>23 does not, is that still your opinion?</p> <p>24 MR. JAMES: Just objection to form.</p> <p>25 A. I'm -- are we going back to what I've</p>
<p style="text-align: right;">Page 223</p> <p>1 disagree with that statement.</p> <p>2 Q. I do. Yes. So you disagree with the</p> <p>3 statement?</p> <p>4 A. Correct.</p> <p>5 Q. Does "the available data are indicative of a</p> <p>6 causal effect," is that not saying to you that talc</p> <p>7 causes cancer?</p> <p>8 MR. JAMES: Just objection to form.</p> <p>9 Q. Ovarian cancer?</p> <p>10 A. I don't believe talc causes ovarian cancer.</p> <p>11 Q. I know you don't believe that but are you</p> <p>12 saying the expert -- the plaintiffs' experts</p> <p>13 suggested that Health Canada gave a causation</p> <p>14 statement that wasn't there? That is a causation</p> <p>15 statement, correct?</p> <p>16 MR. JAMES: Objection to the form and the</p> <p>17 characterization.</p> <p>18 A. I'm confused as to what you're asking.</p> <p>19 Q. Okay. Is the statement, quote, "the</p> <p>20 available data are indicative of a causal effect," a</p> <p>21 causation statement by Health Canada?</p> <p>22 MR. JAMES: Same objection.</p> <p>23 A. They are saying their data support</p> <p>24 causation.</p> <p>25 Q. Correct. But is that not saying their data</p>	<p style="text-align: right;">Page 225</p> <p>1 written now? I'm confused.</p> <p>2 Q. You state: It is noteworthy that this</p> <p>3 report does not explicitly conclude that talc causes</p> <p>4 ovarian cancer as plaintiffs' experts suggest that</p> <p>5 it did.</p> <p>6 A. Got it.</p> <p>7 Q. Is that still your opinion after reading</p> <p>8 that statement?</p> <p>9 MR. JAMES: Objection to form.</p> <p>10 A. Got it. I'm going back to this statement</p> <p>11 now that we've read. I think my statement was</p> <p>12 literal in that, you know, I -- the words</p> <p>13 "indicative of a causal effect," I didn't see them</p> <p>14 strictly saying talc causes ovarian cancer. It's</p> <p>15 indicative of a causative effect. I think there is</p> <p>16 semantics here.</p> <p>17 Q. All right. Okay. Let's go to Page 20.</p> <p>18 Agree or disagree: With respect to talc and</p> <p>19 induction of tumors -- the last paragraph -- local</p> <p>20 chronic irritation leading to an inflammatory</p> <p>21 response is one possible mechanism of tumor</p> <p>22 progression that is frequently hypothesized in the</p> <p>23 literature.</p> <p>24 A. Yes, it's hypothesized.</p> <p>25 Q. On Page 44, second sentence in the</p>

<p style="text-align: right;">Page 226</p> <p>1 next-to-last paragraph: The available human studies</p> <p>2 on possible migration of talc to the ovaries and</p> <p>3 presence of talc particles in the ovaries are</p> <p>4 indicative but not definite.</p> <p>5 Agree or disagree?</p> <p>6 A. I'm still trying to find the sentence. I</p> <p>7 found it. I found it.</p> <p>8 Q. The available human studies on possible</p> <p>9 migration of talc to the ovaries and presence of</p> <p>10 talc particles in the ovaries are indicative but not</p> <p>11 definitive.</p> <p>12 A. I agree they're not definitive. And then</p> <p>13 they go on to cite the limitations that I mentioned,</p> <p>14 about the particles being administered in solution,</p> <p>15 inserted into the reproductive tract under</p> <p>16 anesthesia, all things that are not everyday what a</p> <p>17 woman would do if she is dusting the perineal area.</p> <p>18 Q. But Health Canada concluded that that was</p> <p>19 indicative.</p> <p>20 A. But not definitive, yes.</p> <p>21 Q. And on Page 45: While there --</p> <p>22 I'm reading the last sentence in the first</p> <p>23 paragraph: While there may not be consensus within</p> <p>24 the scientific community regarding the</p> <p>25 interpretation of epidemiological information, after</p>	<p style="text-align: right;">Page 228</p> <p>1 disagree with the statement.</p> <p>2 A. I disagree with it.</p> <p>3 Q. At the last of that paragraph: Overall,</p> <p>4 there is a high degree of consistency in the</p> <p>5 epidemiological studies across several decades</p> <p>6 conducted in different parts of the world. Although</p> <p>7 there are uncertainties related to bias, there is</p> <p>8 confidence in the robustness of the available</p> <p>9 database for use in characterizing ovarian cancer</p> <p>10 risk attributed to talc exposure. Furthermore, the</p> <p>11 available data are indicative of a causal</p> <p>12 relationship.</p> <p>13 And again, they're saying available data</p> <p>14 indicative of a causal relationship. Do you agree</p> <p>15 or disagree with that --</p> <p>16 A. I disagree.</p> <p>17 Q. -- those two sentences?</p> <p>18 A. I disagree. There is a lack of consistency</p> <p>19 between different study designs. They don't comment</p> <p>20 on that. They don't comment on the lack of dose</p> <p>21 response. They don't comment on a potential for</p> <p>22 confounding. It's not a balanced assessment.</p> <p>23 Q. Do you think they do not talk about</p> <p>24 confounding in the --</p> <p>25 A. Right here in that sentence, they don't.</p>
<p style="text-align: right;">Page 227</p> <p>1 weighing the available lines of evidence, the</p> <p>2 assessment determined that the current data are</p> <p>3 indicative of a causal effect.</p> <p>4 Agree or disagree?</p> <p>5 A. Their assessment is as such. I don't agree</p> <p>6 with that assessment.</p> <p>7 Q. But again, Health Canada says it's</p> <p>8 indicative of a causal effect, correct?</p> <p>9 A. They're saying that.</p> <p>10 Q. Okay. On Page 36: There are no adequate</p> <p>11 animal models available to assess ovarian cancer</p> <p>12 risk due to perineal talc exposure. The animal</p> <p>13 models available do however note inflammatory</p> <p>14 response in the reproductive tract of rodents</p> <p>15 exposed to talc particles. As well research --</p> <p>16 recent research with respect to specific mechanisms</p> <p>17 add increased support to the biological plausibility</p> <p>18 consistent with the possible human mode of action</p> <p>19 data for cancer development.</p> <p>20 Do you agree with that statement?</p> <p>21 A. I agree that's what's read here but I</p> <p>22 don't -- I think they are missing information about</p> <p>23 the limitations of those studies.</p> <p>24 Q. Okay. And I'm not asking whether you agree</p> <p>25 that I read it correctly. It's whether you agree or</p>	<p style="text-align: right;">Page 229</p> <p>1 Q. But in the entire assessment they definitely</p> <p>2 talk about confounding; would you agree?</p> <p>3 A. It's mentioned.</p> <p>4 Q. And Health Canada did a Bradford Hill</p> <p>5 analysis, correct?</p> <p>6 A. Yes.</p> <p>7 Q. And they commissioned Taher to do a</p> <p>8 meta-analysis, correct?</p> <p>9 A. Yes.</p> <p>10 Q. On Page 36, back to 36: There is,</p> <p>11 however --</p> <p>12 Beginning in the middle of that paragraph:</p> <p>13 There is, however, support for the idea that despite</p> <p>14 greater susceptibility to biases, case-control</p> <p>15 designs are well suited to study perineal talc</p> <p>16 exposure and ovarian cancer.</p> <p>17 Do you agree or disagree with that?</p> <p>18 A. Disagree because of the potential for recall</p> <p>19 bias especially.</p> <p>20 Q. So at least three times Health Canada states</p> <p>21 there is -- it's indicative of a causal</p> <p>22 relationship, correct?</p> <p>23 A. Indicative.</p> <p>24 (Permuth Exhibit 25 was marked for identification.)</p> <p>25 (Permuth Exhibit 26 was marked for identification.)</p>

<p style="text-align: right;">Page 230</p> <p>1 BY MS. THOMPSON:</p> <p>2 Q. Okay. Let's look at some of the O'Brien</p> <p>3 studies. 25 is the 2020 study that you had referred</p> <p>4 to earlier. I think I'll go ahead, while we're at</p> <p>5 it, 26 are the tables that accompanied the O'Brien</p> <p>6 2020 study, and I want to call your attention to the</p> <p>7 tables -- the first table. What is the hazard</p> <p>8 ratio -- I need to look and see what they use -- for</p> <p>9 all medically confirmed ovarian cancer cases and</p> <p>10 frequent use of talc?</p> <p>11 A. So you said the first table but I'm assuming</p> <p>12 not Table 1.</p> <p>13 Q. I'm sorry. Table 4. I'm sorry. I had my</p> <p>14 pages turned.</p> <p>15 A. No problem.</p> <p>16 Q. I'm in the tables. I'm sorry, the</p> <p>17 supplemental tables.</p> <p>18 A. Okay. So not the main article.</p> <p>19 Q. Let's maybe start that all over. Let's look</p> <p>20 at the supplemental tables that are Exhibit B to</p> <p>21 Dr. O'Brien's paper, and I want to call your</p> <p>22 attention to two figures here. One is the patent</p> <p>23 tubes that we've talked about. What is the risk of</p> <p>24 patent tubes and frequent use?</p> <p>25 A. So I'm trying to figure out which table</p>	<p style="text-align: right;">Page 232</p> <p>1 Q. The frequent use in all medically confirmed</p> <p>2 cases is statistically significant?</p> <p>3 A. It includes 1. I wouldn't consider it as</p> <p>4 such.</p> <p>5 Q. Okay. And then let's go to the paper itself</p> <p>6 and I just want to look at the discussion to see</p> <p>7 what O'Brien in 2020 says about mechanism. If you</p> <p>8 will look to the discussion on Page 56 -- in this</p> <p>9 paper O'Brien is the lead author but there are other</p> <p>10 authors as well, correct?</p> <p>11 A. Correct.</p> <p>12 Q. Trabert and Wentzensen we've discussed</p> <p>13 earlier are NIH researchers, correct?</p> <p>14 A. Yes.</p> <p>15 Q. And in the discussion: One of the primary</p> <p>16 drivers of research on genital use of talc-based</p> <p>17 products and ovarian cancer has been the potential</p> <p>18 link between talc and asbestos, which can occur</p> <p>19 together in nature.</p> <p>20 And there's a discussion in that paragraph</p> <p>21 of: It was recently suggested that some products</p> <p>22 may have contained asbestos after 1976, meaning that</p> <p>23 there may not be a clearly defined time period in</p> <p>24 which talc-based products did or did not contain</p> <p>25 asbestos.</p>
<p style="text-align: right;">Page 231</p> <p>1 we're talking about.</p> <p>2 Q. I'm sorry. E Table 3.</p> <p>3 A. Okay. So frequent use among those with</p> <p>4 patent reproductive tracts, is that what you were</p> <p>5 asking?</p> <p>6 Q. Yes.</p> <p>7 A. So you want me to read the hazard ratio?</p> <p>8 Q. Yeah.</p> <p>9 A. 1.19 with a confidence interval of 1.03 to</p> <p>10 1.37.</p> <p>11 Q. And that's statistically significant,</p> <p>12 correct?</p> <p>13 A. Yes.</p> <p>14 Q. Let's look at the next page, E Table 4?</p> <p>15 A. I just wanted to add nonpatent is not</p> <p>16 significant and the heterogeneity p value is not</p> <p>17 significant either.</p> <p>18 Q. Let's look at all medically confirmed cases</p> <p>19 in E Table 4, and let's look at frequent use in all</p> <p>20 medically confirmed cases, and what's the hazard</p> <p>21 ratio there?</p> <p>22 A. 1.17, and the confidence interval includes</p> <p>23 1, and for long-term use, hazard ratio is 1.04 and</p> <p>24 also includes 1, so neither are statistically</p> <p>25 significant.</p>	<p style="text-align: right;">Page 233</p> <p>1 So at least these authors were aware of a</p> <p>2 potential of asbestos in talcum powder and thought</p> <p>3 it was important to mention it, correct?</p> <p>4 A. Yes, they mentioned it, which was good.</p> <p>5 Q. The next paragraph: By irritating</p> <p>6 epithelial ovarian tissue or fallopian tubes</p> <p>7 directly, powder could induce an inflammatory</p> <p>8 response even in the absence of asbestos. This</p> <p>9 could set off a cascade of increased oxidative</p> <p>10 stress levels, DNA damage and cell division, all of</p> <p>11 which could contribute to carcinogenesis.</p> <p>12 Wouldn't you agree that that indicates that</p> <p>13 these authors thought that would be a plausible</p> <p>14 mechanism?</p> <p>15 MR. JAMES: Just objection to form and calls</p> <p>16 for speculation.</p> <p>17 A. That is one mechanism they propose.</p> <p>18 Q. Do you think they would put that as a</p> <p>19 mechanism if they didn't think it was plausible or</p> <p>20 possible?</p> <p>21 MR. JAMES: Objection; compound.</p> <p>22 Q. Okay. Take out the possible. Just say</p> <p>23 plausible.</p> <p>24 MR. JAMES: Okay. Now objection to form.</p> <p>25 A. I think they are trying to tie together a</p>

<p style="text-align: right;">Page 234</p> <p>1 story and that was a suggestion for a purported 2 mechanism. 3 Q. That wasn't my question. Do you think they 4 would include this if it wasn't a possible 5 mechanism? 6 A. They are reporting this -- 7 MR. JAMES: Objection to form. I'm sorry. 8 A. They're reporting this because they feel it 9 may be a possible mechanism. 10 Q. Do you think they would report it if it were 11 not, in their opinion, a plausible mechanism? 12 MR. JAMES: I'm sorry. Did you say 13 plausible or possible? 14 MS. THOMPSON: I said plausible that time. 15 MR. JAMES: So that will be objection to 16 form. 17 A. I think this is a line of investigation that 18 this group has looked at for some time. I am not 19 surprised that they would comment on this or suggest 20 this. 21 Q. Okay. 22 A. At all. 23 Q. And then the last sentence in that paragraph 24 states: This observation lends support to the 25 hypothesis that powder with or without asbestos</p>	<p style="text-align: right;">Page 236</p> <p>1 Q. And you've testified before, and I believe 2 it's in your report, that you view a study that is 3 not statistically significant as negative even if 4 there is an increased risk shown? 5 MR. JAMES: Objection to form. 6 A. I view it as having no association. 7 Q. No association. That's what I was asking. 8 I'm just clarifying on that. 9 And then it says: The positive 10 relationships between pelvic inflammatory disease 11 and ovarian cancer and chlamydia and infection in 12 ovarian cancer also support an inflammation-mediated 13 mechanism, as does the inverse association between 14 regular aspirin use and ovarian cancer. 15 Do you see that? 16 A. Yes. And some studies have reported such 17 associations. Others have not. 18 Q. But at least these authors -- including 19 Dr. Trabert, including Dr. Wentzensen, including -- 20 who are both at NIH, including Dr. O'Brien, 21 Tworoger, Holly Harris -- those are all members of 22 OCAC, correct? 23 A. Yes. 24 Q. Some of them at least. 25 -- don't say there are studies that show one</p>
<p style="text-align: right;">Page 235</p> <p>1 could irritate and inflame the reproductive tract, 2 as patency is required for there to be a direct 3 physical path between the genitals and the fallopian 4 tubes or ovaries. 5 Does that inform your opinion at all as to 6 whether this hypothesis is plausible? 7 A. Not really. As I pointed out, the 8 association was not significantly different between 9 those with patent and nonpatent reproductive tracts. 10 I'm not adding much weight to that. 11 Q. But what about the part that this 12 observation lends support to the hypothesis that 13 powder with or without asbestos could irritate and 14 inflame the reproductive tract? 15 MR. JAMES: Do you see where it -- 16 A. Yeah, I'm seeing the last sentence, yeah. 17 I know that inflammation has not really been 18 observed to a significant extent when looking at 19 ovaries that have talc embedded, so I am not 20 seeing -- this is not convincing to me. 21 Q. Okay. If the hazard ratio is 1.40, and the 22 confidence interval includes 1, would you view that 23 result as null? 24 A. I'd view it as not statistically significant 25 when using a threshold of p equals .05.</p>	<p style="text-align: right;">Page 237</p> <p>1 thing and another, do they? 2 MR. JAMES: Objection to form. 3 A. I'm not sure what you mean by one thing or 4 another. 5 Q. Well, their statement is: The positive 6 relationships between pelvic inflammatory disease 7 and ovarian cancer and chlamydia infection and 8 ovarian cancer also support an inflammation-mediated 9 mechanism, as does the inverse association between 10 regular aspirin use and ovarian cancer. 11 Is there a possible in any of those 12 associations? Is there some studies show one thing 13 and some shows another? 14 A. Yes. Yes. So with pelvic inflammatory 15 disease, as I talk about in my report, most of 16 what's seen in an association is borderline ovarian 17 cancers, and that's not what we're really talking 18 about here. 19 Chlamydia infections, the inflammatory 20 mechanism is different related to infectious disease 21 processes, which is not what we're talking about 22 here with talc. 23 Q. I understand, but my question was regarding 24 what the authors concluded and stated. 25 A. Yes, and my comment is it's not as balanced</p>

<p style="text-align: right;">Page 238</p> <p>1 as one would hope for.</p> <p>2 Q. Okay. So you disagree with their</p> <p>3 conclusions that I read for your reasons but</p> <p>4 that's --</p> <p>5 A. I disagree because it's not a balanced</p> <p>6 statement. It does not report on the null studies.</p> <p>7 Q. But that is what the authors concluded,</p> <p>8 correct?</p> <p>9 A. That is.</p> <p>10 MR. JAMES: Just objection to form.</p> <p>11 Q. I know I asked it again but it was -- I</p> <p>12 asked it twice but that's because I had to verify it</p> <p>13 in my mind.</p> <p>14 Okay. 27 are the letters that accompany the</p> <p>15 O'Brien 2020 study.</p> <p>16 (Permuth Exhibit 27 was marked for identification.)</p> <p>17 BY MS. THOMPSON:</p> <p>18 Q. Have you seen these?</p> <p>19 A. Yes, I have.</p> <p>20 Q. The first letter is from Dr. Harlow and</p> <p>21 Dr. Rothman. Are you familiar with -- and</p> <p>22 Dr. Murray. Are you familiar with Dr. Harlow and</p> <p>23 Dr. Rothman in particular?</p> <p>24 A. Yes.</p> <p>25 Q. Are they both well-regarded epidemiologists?</p>	<p style="text-align: right;">Page 240</p> <p>1 A. I disagree.</p> <p>2 Q. What does it mean "taken as evidence of an</p> <p>3 effect"?</p> <p>4 A. I feel they're talking about cause and</p> <p>5 effect, and they do point out the methodologic</p> <p>6 issues involved.</p> <p>7 Q. Okay. And you disagree with that?</p> <p>8 A. That this is not evidence of an effect.</p> <p>9 Q. Okay.</p> <p>10 A. And we've talked about how that hazard ratio</p> <p>11 or that association gets attenuated or even lessened</p> <p>12 when we look at confirmed cases, confirmed</p> <p>13 pathologically.</p> <p>14 Q. We're going to look at the Katie O'Brien</p> <p>15 reply. It begins on the same page, the</p> <p>16 next-to-the-last paragraph that begins with</p> <p>17 "Conversely." She says: While true --</p> <p>18 Well, sorry. Let me start all over: While</p> <p>19 true never users are unlikely to report daily use,</p> <p>20 some users may fail to report use and others may</p> <p>21 misreport frequency and duration of use or type of</p> <p>22 product used.</p> <p>23 I want to focus on this statement. Do you</p> <p>24 agree that true never users are unlikely to report</p> <p>25 daily use?</p>
<p style="text-align: right;">Page 239</p> <p>1 A. Yes.</p> <p>2 Q. Dr. Rothman wrote the textbook on</p> <p>3 epidemiology or a well-regarded textbook, correct?</p> <p>4 MR. JAMES: Just objection to form.</p> <p>5 A. Correct.</p> <p>6 Q. Reading from the last paragraph, they state:</p> <p>7 To conclude that "there is no statistically</p> <p>8 significant association" based on an HR of 1.08, (95</p> <p>9 percent CI, 0.99 to 1.17) is now recognized as poor</p> <p>10 practice in population and clinical research."</p> <p>11 Do you agree or disagree with that</p> <p>12 statement?</p> <p>13 A. I disagree.</p> <p>14 Q. And you feel like you're qualified to</p> <p>15 disagree with doctors Harlow and Rothman?</p> <p>16 A. Yes.</p> <p>17 Q. It goes on: If the 95 percent CI had</p> <p>18 instead been 1.01 to 1.19, would the authors have</p> <p>19 had a completely different interpretation? Given</p> <p>20 that the authors reported a 13 percent increased</p> <p>21 risk of ovarian cancer among women with intact</p> <p>22 genital tracts who used powder, despite these</p> <p>23 methodological issues, this study should be taken as</p> <p>24 evidence of an effect.</p> <p>25 Do you agree or disagree with that?</p>	<p style="text-align: right;">Page 241</p> <p>1 MR. JAMES: Objection to form.</p> <p>2 A. Unfortunately, it tends to apply to the</p> <p>3 case-control status and that's where recall bias</p> <p>4 comes in, and I think that the first sentence in</p> <p>5 that paragraph is really important: Empirical</p> <p>6 evidence supports that recall bias is present in</p> <p>7 retrospective studies.</p> <p>8 Q. Okay. And I think everybody would agree</p> <p>9 with that. It's the extent of the recall issue that</p> <p>10 I think we're dealing with.</p> <p>11 On the second -- next page, first full</p> <p>12 paragraph, this is from Dr. O'Brien and other</p> <p>13 authors, including Dr. Wentzensen: We completely</p> <p>14 agree with Dr. Harlow and colleagues that our</p> <p>15 results, particularly the analyses limited to women</p> <p>16 with intact reproductive tracts, should not be</p> <p>17 discounted because of lack of statistical</p> <p>18 significance.</p> <p>19 Do you agree or disagree with that</p> <p>20 statement?</p> <p>21 A. I would want a qualifier that statistical</p> <p>22 significance is not the only thing that should be</p> <p>23 considered here. Other criteria are important, too,</p> <p>24 but I am of the camp, as are many colleagues, that</p> <p>25 we have to have some type of a threshold. I do</p>

<p style="text-align: right;">Page 242</p> <p>1 think confidence intervals are important, just as p</p> <p>2 values are.</p> <p>3 Q. But you've already testified that a 1.4 with</p> <p>4 a confidence interval crossing 1 you would consider</p> <p>5 no effect, correct?</p> <p>6 A. Yes.</p> <p>7 Q. No association, correct?</p> <p>8 A. Correct.</p> <p>9 Q. And Dr. O'Brien and colleagues would appear</p> <p>10 to disagree with your analysis, correct?</p> <p>11 MR. JAMES: Just objection to the form</p> <p>12 there.</p> <p>13 A. They're clarifying they never equated this</p> <p>14 to evidence of no association. I mean, other</p> <p>15 factors -- the fact that -- the purported</p> <p>16 association doesn't meet other Bradford Hill</p> <p>17 criteria, in my mind. Eliminates or reduces the</p> <p>18 likelihood of causality, they don't get into that</p> <p>19 here.</p> <p>20 Q. Let's look at next the -- let's go ahead and</p> <p>21 look at -- I think we talked earlier that O'Brien,</p> <p>22 in addition to looking at ovarian cancer, also</p> <p>23 looked at other types of cancer, in particular</p> <p>24 cervical and uterine, correct?</p> <p>25 A. Right. Yes.</p>	<p style="text-align: right;">Page 244</p> <p>1 Q. The first sentence of the abstract: When</p> <p>2 powder is applied to the genital area, it has the</p> <p>3 potential to reach internal reproductive organs and</p> <p>4 promote carcinogenesis by irritating and inflaming</p> <p>5 exposed tissues.</p> <p>6 And you agree with the statement in this</p> <p>7 context as well?</p> <p>8 MR. JAMES: Pardon? Did you say agree?</p> <p>9 Q. Do you -- do you agree or disagree?</p> <p>10 MR. JAMES: Objection to the form.</p> <p>11 A. I disagree, and as we look at the</p> <p>12 introduction, I just want to point out they point --</p> <p>13 the purported hypothesis is that powder enters the</p> <p>14 vagina, travels up, so ascends, would be the</p> <p>15 terminology I used before, and they cite an article</p> <p>16 by Henderson, which I believe I've commented on in</p> <p>17 my report, and it has limitations.</p> <p>18 Q. Okay. So upward to you means ascends the</p> <p>19 reproductive tract?</p> <p>20 A. Yes.</p> <p>21 Q. Not upward that is counter to gravity,</p> <p>22 because those are two different concepts, right?</p> <p>23 MR. JAMES: Objection to form.</p> <p>24 Q. I just want to understand, because you said</p> <p>25 it would have to --</p>
<p style="text-align: right;">Page 243</p> <p>1 MS. THOMPSON: I only have a copy that's</p> <p>2 highlighted, which we can mark as an Exhibit 28.</p> <p>3 (Permuth Exhibit 28 was marked for identification.)</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. It's my copy and we're not going to spend</p> <p>6 very much time on this, but just to confirm what you</p> <p>7 testified to earlier. This is the pooled analysis</p> <p>8 of the prospective studies that addresses uterine</p> <p>9 cancer, correct?</p> <p>10 A. Yes.</p> <p>11 Q. And to confirm what you said earlier,</p> <p>12 looking at the abstract: There was no overall</p> <p>13 association between ever genital powder use and</p> <p>14 ovarian cancer, HR of 1.01 with a confidence</p> <p>15 interval crossing 1.</p> <p>16 So you would agree with the conclusions of</p> <p>17 the authors regarding uterine cancer, correct?</p> <p>18 A. Yes.</p> <p>19 Q. That there is no association?</p> <p>20 A. Yes.</p> <p>21 Q. And just the first sentence on the</p> <p>22 abstract -- and these are not all the same authors</p> <p>23 but we have Katie O'Brien, Dr. Trabert,</p> <p>24 Dr. Tworoger, Dr. Harris, Wentzensen, correct?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 245</p> <p>1 A. Well, we talked about different positions,</p> <p>2 and you kept saying lying down, I kept saying if you</p> <p>3 are standing upward.</p> <p>4 Q. So when you use the word -- because I do</p> <p>5 agree that it ascends and it goes upward through</p> <p>6 the reproductive tract. I just don't think that's a</p> <p>7 vertical axis when you're talking about gravity.</p> <p>8 MR. JAMES: Just objection to form.</p> <p>9 Q. Yeah. No, that's fine. We can clarify that</p> <p>10 later.</p> <p>11 You're familiar with the Cramer letter in</p> <p>12 2022 -- 2021?</p> <p>13 A. Yes.</p> <p>14 Q. December 2021.</p> <p>15 MS. THOMPSON: We'll mark it as Exhibit 29.</p> <p>16 (Permuth Exhibit 29 was marked for identification.)</p> <p>17 BY MS. THOMPSON:</p> <p>18 Q. And the title of this correspondence with</p> <p>19 Dr. Cramer in Gynecologic Oncology Reports is "The</p> <p>20 association of talc use and ovarian cancer: Biased</p> <p>21 or causal."</p> <p>22 I particularly want to look at the statement</p> <p>23 that you included in your report on Page 90, that</p> <p>24 Gossett editorial that accompanied the 2020 O'Brien</p> <p>25 study.</p>

<p style="text-align: right;">Page 246</p> <p>1 MS. O'DELL: What page are we on?</p> <p>2 MS. THOMPSON: She talks about Gosset on</p> <p>3 Page 90 but we're going to just move on because I</p> <p>4 read the Cramer letter and I'm a little worried</p> <p>5 about time.</p> <p>6 Q. Dr. Cramer talks about the Gosset editorial</p> <p>7 that you included in your report, right? And he</p> <p>8 states that Wentzensen and O'Brien, in their review</p> <p>9 paper: Noted that retrospective case-control</p> <p>10 studies have shown associations between genital</p> <p>11 powder use and ovarian cancer with summary relative</p> <p>12 risk estimates from 1.24 to 1.35.</p> <p>13 Right?</p> <p>14 A. That's what it says.</p> <p>15 Q. Okay. And then that the four large cohorts</p> <p>16 "demonstrated a weak, but statistically significant</p> <p>17 association among women with patent reproductive</p> <p>18 tracts."</p> <p>19 Right? That's what Dr. Cramer says?</p> <p>20 MR. JAMES: Objection to form, and maybe I'm</p> <p>21 lost.</p> <p>22 MS. THOMPSON: We're reading the first</p> <p>23 paragraph of Dr. Cramer's paper.</p> <p>24 MR. JAMES: Did you just say he says</p> <p>25 prospective cohort --</p>	<p style="text-align: right;">Page 248</p> <p>1 lower confidence interval, yes, we discussed that.</p> <p>2 Q. All right. We'll move on to O'Brien 2024.</p> <p>3 (Permuth Exhibit 30 was marked for identification.)</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. I just want to really ask you about two</p> <p>6 things in the paper. You include a discussion in</p> <p>7 your report, correct?</p> <p>8 A. Yes.</p> <p>9 Q. On Page 13, with the first statement: These</p> <p>10 results do not establish causality.</p> <p>11 Right? But I want to read: Some talc may</p> <p>12 have been contaminated with asbestos or other</p> <p>13 potentially harmful chemicals such as phthalates or</p> <p>14 parabens. Chronic irritation of the ovaries or</p> <p>15 fallopian tubes from talc or talc-like products</p> <p>16 could also potentially contribute to carcinogenesis.</p> <p>17 Do you agree that the authors of this study</p> <p>18 include chronic irritation of the ovaries as</p> <p>19 potentially contributing to carcinogenesis?</p> <p>20 A. They are mentioning it. I don't see a</p> <p>21 citation for that but, again, this is the same group</p> <p>22 that's been publishing in that area, so I'm not</p> <p>23 surprised to read that.</p> <p>24 Q. And there certainly isn't a statement that</p> <p>25 we don't think it's plausible for talcum powder or</p>
<p style="text-align: right;">Page 247</p> <p>1 MS. THOMPSON: Four large cohorts</p> <p>2 demonstrated, this is a quote, "demonstrated a</p> <p>3 weak but statistically significant association</p> <p>4 among women with patent reproductive tracts."</p> <p>5 MR. JAMES: Okay. I missed the first half</p> <p>6 of that sentence.</p> <p>7 A. Yeah, that wasn't read: Prospective cohort</p> <p>8 studies have not shown a statistically significant</p> <p>9 association between genital powder use and ovarian</p> <p>10 cancer.</p> <p>11 Q. Right. Okay. And I'll apologize for not</p> <p>12 including that. It was not intentional.</p> <p>13 And then Dr. Cramer goes on: This opinion,</p> <p>14 I think correctly, departs from that expressed in an</p> <p>15 editorial accompanying the pooled analysis paper</p> <p>16 which concluded that only the "statistically</p> <p>17 unsophisticated" would selectively highlight the</p> <p>18 positive finding in women with intact genital tracts</p> <p>19 with the overall hazard ratio of 1.08 with a lower</p> <p>20 confidence limit of .99 missed statistical</p> <p>21 significance.</p> <p>22 But that's what you would conclude from the</p> <p>23 hazard ratio of 1.8 [sic] with a lower confidence</p> <p>24 level of .99?</p> <p>25 A. With a hazard ratio of 1.08? Yes, and that</p>	<p style="text-align: right;">Page 249</p> <p>1 talcum powder with asbestos to cause ovarian cancer,</p> <p>2 do they?</p> <p>3 MR. JAMES: Just object to the form.</p> <p>4 A. Can you repeat that? Zoo.</p> <p>5 Q. Do the authors state they don't believe it's</p> <p>6 plausible that talcum powder with or without</p> <p>7 asbestos can cause ovarian cancer?</p> <p>8 A. I think --</p> <p>9 MR. JAMES: Same objection.</p> <p>10 A. They clearly state these results do not</p> <p>11 establish causality and do not implicate any</p> <p>12 specific cancer-inducing agent.</p> <p>13 Q. Okay. That was not my question, though, and</p> <p>14 I agree that the authors do not establish causality</p> <p>15 or state that they do not cause -- establish</p> <p>16 causality because there are other factors involved,</p> <p>17 but they do state that some talc may have been</p> <p>18 contaminated with asbestos and other potentially</p> <p>19 harmful chemicals, such as phthalates and parabens.</p> <p>20 Chronic irritation of the ovaries or fallopian tubes</p> <p>21 from talc or talc-like products could also</p> <p>22 potentially contribute to carcinogenesis.</p> <p>23 Do you disagree that that would be a</p> <p>24 plausible mechanism if you were doing a Bradford</p> <p>25 Hill analysis?</p>

<p style="text-align: right;">Page 250</p> <p>1 MR. JAMES: I'm sorry.</p> <p>2 A. They are postulating that.</p> <p>3 MR. JAMES: I'm sorry. Objection to form.</p> <p>4 Go ahead now.</p> <p>5 A. No, I feel they are postulating that, but --</p> <p>6 Q. In Bradford Hill, for biological</p> <p>7 plausibility, does it have to be proven, in your</p> <p>8 mind?</p> <p>9 A. Some things are not yet proven and I haven't</p> <p>10 seen evidence it being proved, but that's one of</p> <p>11 many factors that I'm considering here in my</p> <p>12 assessment.</p> <p>13 Q. What -- do these authors mention any other</p> <p>14 plausible explanation?</p> <p>15 MR. JAMES: Just objection.</p> <p>16 Q. Or unplausible explanation, for that matter?</p> <p>17 A. Explanation for?</p> <p>18 MR. JAMES: Just objection to the form.</p> <p>19 Q. For how talc could potentially contribute to</p> <p>20 carcinogenesis.</p> <p>21 A. I don't recall seeing much in terms of</p> <p>22 mechanism other than what we've pointed out.</p> <p>23 Q. Okay. And then in the next paragraph: Our</p> <p>24 findings of a positive association between genital</p> <p>25 talc use and ovarian cancer are consistent with</p>	<p style="text-align: right;">Page 252</p> <p>1 Q. I'm just -- do the authors state -- of this</p> <p>2 paper state their findings in this paper are</p> <p>3 consistent with previous studies, including</p> <p>4 case-control and cohort pooled study and the current</p> <p>5 cohort study?</p> <p>6 A. They state that and I have expressed there</p> <p>7 are limitations to what they're saying here.</p> <p>8 Q. And did you look at the editorial that</p> <p>9 accompanies this paper by Holly Harris?</p> <p>10 A. Yes.</p> <p>11 MS. THOMPSON: And this will be Exhibit 31.</p> <p>12 (Permuth Exhibit 31 was marked for identification.)</p> <p>13 BY MS. THOMPSON:</p> <p>14 Q. Dr. Harris states, second paragraph in her</p> <p>15 editorial: Pooled analyses of case-control studies</p> <p>16 have shown estimates of 24 percent to 32 percent</p> <p>17 higher ovarian cancer risk for ever compared with</p> <p>18 never use of genital powder, as well as the</p> <p>19 suggestion of a higher risk with increasing number</p> <p>20 of lifetime applications.</p> <p>21 Is the higher risk with increasing number of</p> <p>22 lifetime applications suggestive of a dose response?</p> <p>23 MR. JAMES: Just object to form.</p> <p>24 A. What we see consistently throughout</p> <p>25 case-control studies definitely is not a</p>
<p style="text-align: right;">Page 251</p> <p>1 previous studies.</p> <p>2 Do you agree or disagree with that?</p> <p>3 A. I disagree. I think that's misleading. It</p> <p>4 may be consistent with prior case-control studies</p> <p>5 but certainly not with prospective studies, and,</p> <p>6 importantly, this study is very hypothetical in</p> <p>7 nature, based on lots of simulations and</p> <p>8 assumptions, which I think are flawed.</p> <p>9 Q. Well, let's continue on: Pooled analyses or</p> <p>10 meta-analysis of case-control studies have produced</p> <p>11 odds ratios of 1.2 to 1.4. The hazard ratio from a</p> <p>12 pooled analysis of prospective cohort studies also</p> <p>13 indicated a positive albeit small association, HR</p> <p>14 equals 1.08, and as previously noted, this effect</p> <p>15 estimate is likely biased toward the null because of</p> <p>16 nondifferential misclassification of exposure.</p> <p>17 They are talking of the 2020 O'Brien study,</p> <p>18 correct?</p> <p>19 A. I believe so.</p> <p>20 Q. Okay. And then the last: This possibility</p> <p>21 is well illustrated by the Sister Study, where we</p> <p>22 previously reported 27 percent ever use of genital</p> <p>23 talc, but here observed 40 percent ever use across a</p> <p>24 wider age range.</p> <p>25 A. Because of their assumptions.</p>	<p style="text-align: right;">Page 253</p> <p>1 dose-response relationship, so I think that comment</p> <p>2 is misleading.</p> <p>3 Q. So you would --</p> <p>4 A. Even in the Terry, et al., study, which they</p> <p>5 are citing, she herself talks about lack of a</p> <p>6 dose-response relationship.</p> <p>7 Q. So you disagree with the statement by Holly</p> <p>8 Harris that there's a suggestion of a higher risk</p> <p>9 with increasing number of lifetime applications?</p> <p>10 A. Yeah. That's not true across the board.</p> <p>11 Q. Okay.</p> <p>12 A. Especially in prospective cohort studies.</p> <p>13 Q. Let's go to the takeaway on the second page.</p> <p>14 The last sentence in the takeaway section is: Given</p> <p>15 that genital powder use and douching are modifiable</p> <p>16 exposures potentially associated with a highly fatal</p> <p>17 disease, these data suggest that people at risk for</p> <p>18 ovarian cancer, particularly those in their twenties</p> <p>19 and thirties, should be made aware of the potential</p> <p>20 risks.</p> <p>21 Are you making aware -- you're not seeing</p> <p>22 patients currently, but do you disagree that people</p> <p>23 at risk for ovarian cancer, particularly in their</p> <p>24 twenties and thirties, should be made aware of the</p> <p>25 potential risk of perineal talc exposure?</p>

<p style="text-align: right;">Page 254</p> <p>1 A. I don't. It had never come up during my 2 days and gynecologic oncologists don't seem to have 3 it as part of their discussions with patients. 4 Q. How do you know what gynecologic oncology 5 doctors are talking with their patients now? 6 A. For example, in looking at many of the 7 depositions for gynecologic oncologists for the 8 plaintiffs, it didn't come up in their discussions. 9 They reported that. 10 Q. Have you done any kind of survey or have you 11 seen a survey? 12 A. I'm just talking that is the data I'm 13 relying on. 14 Q. Based on depositions of treating doctors in 15 the litigation? 16 A. Yes. 17 Q. Okay. And then going to the first page 18 again, let's go there: After accounting for 19 potential biases, O'Brien, et al., report a 20 significant increase in ovarian cancer risk for 21 genital powder use, with effect estimates that are 22 in the range with previous studies. 23 And that's what you disagree with, correct? 24 A. Yes. I want on the record recall bias is 25 exacerbated by the analyses that they perform.</p>	<p style="text-align: right;">Page 256</p> <p>1 immediate release, May 15th, from ASCO, the main 2 takeaway: Genital talc use was found to be 3 positively associated with the risk of ovarian 4 cancer across multiple scenarios, even after 5 adjusting for potential reporting biases and 6 misclassification. The association was particularly 7 strong among women who use talc frequently or 8 especially during periods of significant hormonal 9 changes or reproductive activity. 10 A. I see that. I don't agree with that. It 11 doesn't get to the meat of the concerns related to 12 the analysis and how it was undertaken. 13 Q. Okay. 14 A. If we rely on data that was prospectively 15 collected in nature, it's in line with prior studies 16 of no association. If we rely on retrospective 17 studies and all of the recall bias that went into 18 them, that is exaggerating and enhancing the hazards 19 ratio, so we're seeing a superficial association. 20 Q. I'm going to show you just a few articles 21 that are dealing with some of the issues that we've 22 been talking about today. The first is Dr. Ness in 23 2000. 24 (Permuth Exhibit 33 was marked for identification.) 25 BY MS. THOMPSON:</p>
<p style="text-align: right;">Page 255</p> <p>1 Q. And the last sentence in that paragraph: In 2 this paper, even with misreporting of the exposure 3 (i.e. genital powder use) in half the cases, a 4 significant increase in ovarian cancer risk is still 5 observed, adding support to the plausibility of a 6 true association between genital powder use and 7 ovarian cancer risk. 8 And do you agree with the conclusion of 9 Dr. Harris? 10 A. No. No. 11 Q. And ASCO, you mentioned, is a reputable 12 organization that you're a member of, correct? 13 A. Yes. 14 MS. THOMPSON: We'll mark 32. 15 (Permuth Exhibit 32 was marked for identification.) 16 BY MS. THOMPSON: 17 Q. Were you aware that ASCO, the American 18 Society of Clinical Oncologists, released a press 19 release following this paper? 20 A. I have not seen their press release. 21 MS. THOMPSON: We'll mark it 32. 22 THE WITNESS: Thank you. 23 THE COURT REPORTER: You're welcome. 24 BY MS. THOMPSON: 25 Q. In looking at the press release for</p>	<p style="text-align: right;">Page 257</p> <p>1 Q. It's an older paper. And you know Dr. Ness, 2 correct? 3 A. Yes, I know of her. 4 Q. And you've published with Dr. Ness, I 5 believe. 6 A. Probably is part of OCAC. 7 Q. Okay. And she's a respected epidemiologist, 8 you would agree? 9 A. Yes. 10 Q. And she, in fact, just received a lifetime 11 achievement award from the American Academy of 12 Epidemiology, if you're aware of that. Are you? 13 A. I may have seen her comment on that. 14 Q. Okay. Have you read her report in the 15 talcum powder litigation -- 16 A. I have in the past -- 17 Q. -- with the opinion that talc can cause 18 ovarian cancer? 19 A. Yes. 20 Q. Okay. This paper, written in 2000, was 21 certainly before she became a litigation expert, 22 correct? 23 A. Yes. 24 Q. And the paper is titled "Factors Related to 25 Inflammation of the Ovarian Epithelium and Risk of</p>

<p style="text-align: right;">Page 258</p> <p>1 Ovarian Cancer," and she is talking about asbestos 2 and talc exposure. In the second paragraph of the 3 paper, at the top of column two: All of these 4 factors -- including the ones she listed in the 5 first paragraph -- act by a common pathway -- that 6 includes talc and asbestos -- by modulating 7 inflammation of the ovarian epithelium, the cell 8 type from which more than 90 percent of ovarian 9 cancers arise. Ovulation entails disruption of the 10 ovarian epithelium by the extruded follicle, 11 followed by inflammation and wound repair. 12 Asbestos, talc, endometriosis, and pelvic 13 inflammatory disease all initiate marked local 14 inflammation. 15 Do you agree with that statement by Dr. Ness 16 so far from 2000? 17 MR. JAMES: Just objection to the form and I 18 think you omitted the word "may" in the first 19 sentence. 20 Q. All of these factors may act by a common 21 pathway. Let's make sure we put may in there. I 22 did not mean to misread it. 23 A. Yeah. I disagree with the emphasis on 24 inflammation and the lack of emphasis on alternate 25 hypothesis.</p>	<p style="text-align: right;">Page 260</p> <p>1 Q. Okay. Then she goes on: Inflammation 2 involves rapid cell division, DNA excision and 3 repair, oxidative stress and high concentrations of 4 cytokines and prostaglandins, all of which are 5 established promoters of mutagenesis. 6 Do you agree that Dr. Ness's description is 7 consistent with much of the literature today as far 8 as the potential for talc to cause chronic 9 inflammation and ovarian cancer? 10 MR. JAMES: Just objection to the form. 11 A. I think, again, it's her hypothesis. There 12 is some literature with ovarian but most of the bulk 13 of literature out there about inflammation and 14 cancer is with other cancer types, and I think some 15 of the citations are general review articles. 16 Q. But you would agree that Dr. Ness thought 17 that to be a plausible explanation or else she 18 wouldn't have had the entire paper devoted to 19 inflammation of the ovarian -- 20 A. This has been -- 21 MR. JAMES: Just -- I'm sorry. Just 22 objection. I'm sorry, Margaret. Were you done? 23 Q. The whole paper on inflammation of the 24 ovarian epithelium and risk of ovarian cancer and 25 including talc.</p>
<p style="text-align: right;">Page 259</p> <p>1 Q. But that's consistent with the hypotheses in 2 the current literature, wouldn't you agree? 3 MR. JAMES: Objection to form. 4 A. I think some plaintiffs' experts talk about 5 this inflammatory hypothesis but don't talk about 6 other hypotheses, such as incessant ovulation. 7 Q. Well, I'm talking about the epidemiological 8 literature. We don't need to talk about plaintiffs' 9 experts to -- for you to agree that this is a 10 mechanism discussed in much of the epidemiological 11 literature, correct? 12 MR. JAMES: Just objection to form. 13 A. Yes, it is discussed in the literature. 14 Q. Okay. She goes on: Tubal ligation and 15 hysterectomy sever the pathway from the lower to the 16 upper genital tract, thereby disallowing 17 inflammatory substances to ascend through the lower 18 genital tract to the upper genital tract, and 19 ultimately to the ovarian epithelium. 20 Do you agree with that statement? 21 A. I believe there are alternate hypotheses to 22 explain how something like tubal ligation may reduce 23 the risk of ovarian cancer. So it's not that it is 24 talc going through the genital tract or ascending 25 and causing ovarian cancer.</p>	<p style="text-align: right;">Page 261</p> <p>1 MR. JAMES: Objection; calls for 2 speculation, and lack of foundation and form. 3 A. This is an area she seems to have been 4 interested in for a long time. 5 Q. I would agree. She had this paper published 6 in 2000. 7 This is the Brieger paper, and you talked 8 about the Brieger paper in your report, correct? 9 A. Yes. 10 Q. Primarily, as I recall, correct me if I'm 11 wrong, in regard to Dr. Levy relying on this paper? 12 A. Yes. Yes. 13 Q. Is this an OCAC study? 14 A. I am going to my report. It does seem that 15 it's a pooled analysis from OCAC, yes. 16 MS. THOMPSON: And this will be marked as 17 Exhibit 34. 18 (Permuth Exhibit 34 was marked for identification.) 19 BY MS. THOMPSON: 20 Q. If you look at the authors, we have some of 21 the authors that we've been -- 22 MS. THOMPSON: I'm sorry. 23 Q. -- discussing through the day today. 24 A. Correct. 25 Q. And in this paper, under the "Overall</p>

<p style="text-align: right;">Page 262</p> <p>1 analytic approach" on Page 5, talc is included as a</p> <p>2 combined measure of inflammation-related risk</p> <p>3 factors.</p> <p>4 Do you agree with that?</p> <p>5 A. Yes.</p> <p>6 Q. And those risk factors are listed in the</p> <p>7 introduction: Chronic inflammation can directly</p> <p>8 cause DNA damage, which is particularly relevant for</p> <p>9 cancer initiation and progression.</p> <p>10 The authors --</p> <p>11 A. Where are you reading that?</p> <p>12 Q. The introduction.</p> <p>13 A. Okay. You're back at the introduction.</p> <p>14 Okay. I see that.</p> <p>15 Q. Not surprisingly, invasive epithelial</p> <p>16 ovarian cancer, hereafter referred to as ovarian</p> <p>17 cancer, risk is associated with proinflammatory</p> <p>18 exposures, including smoking history, pelvic</p> <p>19 inflammatory disease, endometriosis, and possibly</p> <p>20 genetic [sic] talcum powder.</p> <p>21 A. I just wanted to note that References 1 and</p> <p>22 2 pertain to all cancer types, it's not specific to</p> <p>23 ovarian cancer.</p> <p>24 Q. Okay.</p> <p>25 A. And then I also --</p>	<p style="text-align: right;">Page 264</p> <p>1 recommended.</p> <p>2 Dr. Wu, on his paper, states that talc is a</p> <p>3 well-accepted risk factor, correct? We've already</p> <p>4 looked at her paper.</p> <p>5 MR. JAMES: Just objection to form.</p> <p>6 A. I believe we looked at that one. We've</p> <p>7 looked at so many.</p> <p>8 Q. And --</p> <p>9 A. And I think people are stating these things</p> <p>10 but I'm not seeing much evidence behind them, so I</p> <p>11 wanted that noted.</p> <p>12 Q. Do you think they're stating it but don't</p> <p>13 believe it?</p> <p>14 MR. JAMES: Objection to form.</p> <p>15 A. I'm not saying that.</p> <p>16 Q. Okay. We talked about the Savant paper</p> <p>17 earlier, that we referenced.</p> <p>18 A. Yes.</p> <p>19 MS. THOMPSON: Exhibit 35.</p> <p>20 (Permuth Exhibit 35 was marked for identification.)</p> <p>21 BY MS. THOMPSON:</p> <p>22 Q. This paper is on your reliance list. Do you</p> <p>23 remember seeing it?</p> <p>24 A. May I have a copy?</p> <p>25 (Discussion off the record.)</p>
<p style="text-align: right;">Page 263</p> <p>1 Q. Well, there is no question, unless it's</p> <p>2 related to this article.</p> <p>3 A. Related to this article, there's no</p> <p>4 association when looking at talc by itself.</p> <p>5 Q. Okay. If we look at some of what these</p> <p>6 authors have stated before, Phung we've already</p> <p>7 looked at, stated talc was a well-accepted risk</p> <p>8 factor, correct?</p> <p>9 A. They stated that.</p> <p>10 Q. And we know that Cramer believes that talc</p> <p>11 is not only a risk factor but causative, correct?</p> <p>12 A. Correct.</p> <p>13 Q. And are you familiar with Gentry-Maharaj?</p> <p>14 A. Yes.</p> <p>15 Q. Are you familiar with her article in a</p> <p>16 cancer prevention textbook edited by Christine Berg,</p> <p>17 who was Special Advisor to the Director at the</p> <p>18 Division of Cancer Epidemiology and Genetics at NCI</p> <p>19 and NIH?</p> <p>20 A. I don't know which article we're referring</p> <p>21 to. Do you have a copy of it?</p> <p>22 Q. No, but I will represent that</p> <p>23 Dr. Gentry-Maharaj says the use of talc in the</p> <p>24 genital area has consistently been shown to increase</p> <p>25 the risk of ovarian cancer and, therefore, it's not</p>	<p style="text-align: right;">Page 265</p> <p>1 BY MS. THOMPSON:</p> <p>2 A. So, yes, I do remember seeing this and</p> <p>3 citing it.</p> <p>4 Q. This is a lengthy paper, you would agree?</p> <p>5 A. Yes, with small font, lots of pages.</p> <p>6 Q. Small font, 30 pages, with 231 references.</p> <p>7 A. (Nodding head.)</p> <p>8 Q. And the whole paper deals with the role of</p> <p>9 -- or the title and the paper does deal with it.</p> <p>10 "The Role of Inflammation and Inflammatory Mediators</p> <p>11 in the Development, Progression, Metastasis, and</p> <p>12 Chemoresistance of Epithelial Ovarian Cancer," is</p> <p>13 the title.</p> <p>14 And in the abstract: Inflammation plays a</p> <p>15 role in the initiation and development of many types</p> <p>16 of cancers, including epithelial ovarian cancer and</p> <p>17 high grade serous ovarian cancer, a type of EOC.</p> <p>18 Is this evidence to you that inflammation</p> <p>19 plays a role in carcinogenesis of the ovary?</p> <p>20 A. They're providing supporting data. I'm not</p> <p>21 sure this is particularly relevant to talc --</p> <p>22 Q. And why is that?</p> <p>23 A. -- as the purported association. I'm not --</p> <p>24 I don't recall seeing talc mentioned in here.</p> <p>25 Inflammation is a pretty broad category.</p>

<p style="text-align: right;">Page 266</p> <p>1 Q. It goes on: At sites of inflammation 2 epithelial cells are exposed to increased levels of 3 inflammatory mediators, such as reactive oxygen 4 species, cytokines, prostaglandins, and growth 5 factors that contribute to increased cell division 6 and genetic and epigenetic changes. 7 You would agree that's similar in this 8 review article of the role of inflammation to what 9 we've seen in the epidemiological studies, would you 10 agree? 11 MR. JAMES: Just object to form, please. 12 A. Not necessarily. 13 Q. Have you seen in the epidemiologic studies 14 that we've talked about today the discussion of 15 reactive oxygen species? 16 A. In some of them we've seen that mentioned. 17 Q. Have you seen cytokines mentioned? 18 A. We have and I commented on that earlier. 19 Q. Have we seen prostaglandins mentioned? 20 A. Yes. 21 Q. Have we seen epigenetic changes mentioned? 22 A. We have. 23 Q. Have we seen cell division and cell 24 proliferation mentioned? 25 A. Yes, and this is a review article meant to</p>	<p style="text-align: right;">Page 268</p> <p>1 A. Yeah. 2 Q. 231 references, so that was exclusively what 3 she looked at, and most of them published after 4 2018, when this article was published, would you 5 agree? 6 MR. JAMES: Just objection to form. 7 A. Lots of the citations are from earlier than 8 those years, but... 9 Q. Okay. And the citation with Figure 1 is 10 titled "Sources of inflammation in the ovary and 11 fimbriae:" Ovulation, retrograde menstruation, 12 endometriosis, infections, exposure to talc, 13 polycystic ovarian syndrome and obesity result in 14 exposure of the ovary and fimbriae to reactive 15 oxygen species, ROS, oxidative stress, cytokines, 16 and growth factors, generating an inflammatory 17 response that leads to additional production of ROS 18 and cytokines in the ovary. Unresolved chronic 19 inflammation is a critical risk factor for tumor 20 initiation. 21 So you would agree that the authors of this 22 paper would certainly believe it's plausible that 23 exposure to talc could cause ovarian cancer by an 24 inflammatory process? 25 MR. JAMES: Sorry. Just objection to the</p>
<p style="text-align: right;">Page 267</p> <p>1 comment on those things. 2 Q. Okay. Well, let's turn to Page -- and this 3 is published in Cancers. Let's turn to Page 6 of 4 30. Let's look at the diagram on that page in 5 Figure 1, and you will see that talc exposure is 6 listed in this with an arrow pointing to the ovary 7 and with a production, if you believe the arrows, of 8 ROS, reactive oxygen species production, oxidative 9 stress, cytokines, and growth factors, and that is 10 inflammation, correct? 11 MR. JAMES: Just object to form. 12 A. I see the figure where it says talc 13 exposure. What I haven't seen to date is data to 14 support talc exposure in leading to ROS 15 production -- 16 Q. Okay. Let's read -- 17 A. -- oxidative stress, increased cytokines, or 18 growth factors. What I've seen are erroneous in 19 vitro studies about that. 20 Q. But you're -- did Savant look at -- or did 21 Savant cite any of what you consider erroneous 22 in vitro studies? 23 A. I'd have to look. If I had my computer, I 24 could quickly -- 25 Q. Well, there are 242 references.</p>	<p style="text-align: right;">Page 269</p> <p>1 form. 2 A. The authors are putting forth that 3 hypothesis. 4 Q. Do you think they would put forth the 5 hypothesis if it was not plausible? 6 MR. JAMES: Just objection to the form and 7 calls for speculation. 8 Q. You don't need to answer that question if 9 you would have to speculate. 10 A. Yes, it would be speculative. 11 MS. THOMPSON: Exhibit 36. 12 (Permuth Exhibit 36 was marked for identification.) 13 BY MS. THOMPSON: 14 Q. Have you seen this paper before? 15 A. I don't recall this one. 16 Q. It's published in 2022, and you would agree 17 that Gynecologic Oncology Reports is the companion 18 journal to Gynecologic Oncology, correct? 19 A. I believe so. 20 Q. So this paper is also about inflammation and 21 its relationship to ovarian cancer, correct? 22 A. Yes. 23 Q. Do you agree that the risk/protective 24 factors of ovarian cancer suggest that its etiology 25 is multifactorial?</p>

<p style="text-align: right;">Page 270</p> <p>1 MR. JAMES: Just objection to form.</p> <p>2 Q. Did I not read that correctly?</p> <p>3 MR. JAMES: I'm just looking for where you</p> <p>4 are.</p> <p>5 MS. THOMPSON: In the abstract, the second</p> <p>6 sentence.</p> <p>7 MR. JAMES: Okay.</p> <p>8 A. Yes, many factors can contribute to the</p> <p>9 etiology of ovarian cancer.</p> <p>10 Q. Okay. And then going down to the sentence</p> <p>11 that begins "At sites of inflammation," these</p> <p>12 authors state: At sites of inflammation, exposure</p> <p>13 to high levels of inflammatory mediators, such as</p> <p>14 reactive oxygen species, cytokines, prostaglandins,</p> <p>15 and growth factors, contributes to increased cell</p> <p>16 division and genetic and epigenetic changes. These</p> <p>17 exposure-induced changes promote excessive cell</p> <p>18 proliferation, increased survival,</p> <p>19 malignant transformation and customer development.</p> <p>20 Furthermore, the proinflammatory tumor</p> <p>21 microenvironment contributes to ovarian cancer</p> <p>22 metastasis and chemoresistance.</p> <p>23 Isn't that description very similar to what</p> <p>24 we just saw in the Savant paper?</p> <p>25 MR. JAMES: Sorry. Objection to form,</p>	<p style="text-align: right;">Page 272</p> <p>1 been considered a key mechanism for carcinogenesis</p> <p>2 after detecting leukocytes in cancer tissues.</p> <p>3 And it goes on and that's where the --</p> <p>4 that's another citation with Savant, you would</p> <p>5 agree?</p> <p>6 A. Another citation with --</p> <p>7 Q. With Savant?</p> <p>8 A. Oh, I see that at the bottom.</p> <p>9 Q. Among other factors, such as hereditary,</p> <p>10 environmental, and lifestyle factors -- reading in</p> <p>11 the next paragraph -- inflammation is an important</p> <p>12 risk factor for ovarian cancer.</p> <p>13 Do you disagree with that statement?</p> <p>14 MR. JAMES: Just objection to the form.</p> <p>15 A. Inflammation I think of more of a process or</p> <p>16 a pathway or a mechanism, not as a risk factor per</p> <p>17 se, and again, this is the first time I'm seeing</p> <p>18 this article.</p> <p>19 Q. Okay. And let's look at Figure 1. Do you</p> <p>20 agree talc exposure in the bottom left-hand corner?</p> <p>21 A. I see it in the bottom right corner.</p> <p>22 Q. Uh-huh. And it's showing arrows going in</p> <p>23 through the vagina, through the cervix, through the</p> <p>24 uterus, and out the fallopian tube, correct, out</p> <p>25 into the fallopian tube?</p>
<p style="text-align: right;">Page 271</p> <p>1 please.</p> <p>2 A. One thing we're not seeing is ovarian cancer</p> <p>3 being specifically called out in those sentences you</p> <p>4 just read.</p> <p>5 Q. Except for the title is "Etiopathogenesis of</p> <p>6 ovarian cancer."</p> <p>7 A. That may be, but in the abstract they didn't</p> <p>8 clarify that, in the sentences that you read.</p> <p>9 Q. Okay.</p> <p>10 A. And in a lot of the background material,</p> <p>11 it's quite generic in terms of the cancers they are</p> <p>12 looking at.</p> <p>13 Q. Okay. But in the paragraph we read, the</p> <p>14 first sentence was ovarian cancer is the most common</p> <p>15 gynecologic cancers and has the highest mortality</p> <p>16 rate, and the title of the paper is ovarian cancer,</p> <p>17 so --</p> <p>18 A. Correct.</p> <p>19 Q. We'll let somebody make a decision -- make</p> <p>20 their own interpretation as to whether that's</p> <p>21 related to ovarian --</p> <p>22 A. Subsequent sentences are more generic,</p> <p>23 that's all I was saying.</p> <p>24 Q. And in the introduction, the second</p> <p>25 paragraph in the second column: Inflammation has</p>	<p style="text-align: right;">Page 273</p> <p>1 MR. JAMES: Just objection to form.</p> <p>2 A. I'm following the figure.</p> <p>3 Q. Okay. And you agree that the arrows are</p> <p>4 pointing from talc exposure through the reproductive</p> <p>5 tract, correct?</p> <p>6 A. The purported route, yes.</p> <p>7 Q. Yeah. This is the authors' diagram.</p> <p>8 A. (Nodding head.)</p> <p>9 Q. Do you disagree with that diagram?</p> <p>10 A. I'd have to look closely at all of the</p> <p>11 aspects of the diagram, both what they're saying and</p> <p>12 what's purported. They're trying to show what we've</p> <p>13 been talking about today.</p> <p>14 Q. So with this diagram they show talc actually</p> <p>15 reaching at least the fallopian tubes, correct?</p> <p>16 MR. JAMES: Just objection to form.</p> <p>17 A. They're trying to show that.</p> <p>18 Q. Okay.</p> <p>19 A. But not remarking on alternative things,</p> <p>20 like some important literature regarding the</p> <p>21 fallopian tubes and the protective role of tubal</p> <p>22 ligation. I don't see that really mentioned here.</p> <p>23 Q. This is a patent reproductive tract in this</p> <p>24 figure, wouldn't you agree?</p> <p>25 A. Yes.</p>

<p style="text-align: right;">Page 274</p> <p>1 Q. And talc is in the box that's titled</p> <p>2 "Inflammation," correct?</p> <p>3 A. That's where they put it.</p> <p>4 Q. Okay. Let's go to Page 3, where it</p> <p>5 specifically talks about talc in this paper,</p> <p>6 beginning in the bottom paragraph: Another example</p> <p>7 of an inflammatory factor involved in the</p> <p>8 carcinogenesis of ovarian cancer is the use of</p> <p>9 talcum powder in the genital area.</p> <p>10 I think you've disagreed with that</p> <p>11 statement, correct?</p> <p>12 A. And I would like to note there is no</p> <p>13 citations there.</p> <p>14 Q. Talc, along with associated components such</p> <p>15 as asbestos or quartz, which are known carcinogen</p> <p>16 and can contaminate talc products, might ascend</p> <p>17 through the genital tract and irritate the</p> <p>18 epithelial lining of the fallopian tubes or ovaries.</p> <p>19 And you disagree with that statement as</p> <p>20 well?</p> <p>21 A. Correct, and again no citation.</p> <p>22 Q. This could possibly trigger an inflammatory</p> <p>23 response that may promote carcinogenesis.</p> <p>24 You disagree with that?</p> <p>25 A. Hypothesis, yes.</p>	<p style="text-align: right;">Page 276</p> <p>1 position as we're objecting to that, and I don't</p> <p>2 think it's been done for any other experts in the</p> <p>3 MDL or MCL.</p> <p>4 MS. THOMPSON: Okay.</p> <p>5 MS. O'DELL: We've been going an hour and 20</p> <p>6 minutes, or maybe a little bit less.</p> <p>7 MS. THOMPSON: Let's take a short break.</p> <p>8 (Recess from 4:33 p.m. until 4:52 p.m.)</p> <p>9 (Permuth Exhibit 37 was marked for identification.)</p> <p>10 BY MS. THOMPSON:</p> <p>11 Q. Exhibit 37 is from your report, and I</p> <p>12 believe it's Exhibit C.</p> <p>13 MS. THOMPSON: I do not have another copy.</p> <p>14 I apologize.</p> <p>15 MR. JAMES: I have one.</p> <p>16 A. It looks like these are several copies of</p> <p>17 Table 2. Are you looking for your copy?</p> <p>18 Q. I'm actually just looking at Table 1. So</p> <p>19 let me --</p> <p>20 A. Okay.</p> <p>21 Q. I thought they were multiple copies but I</p> <p>22 have all the copies of Table 1.</p> <p>23 MS. THOMPSON: This is the one I want to</p> <p>24 actually mark.</p> <p>25 (Discussion off the record.)</p>
<p style="text-align: right;">Page 275</p> <p>1 Q. Taken together, epidemiologic data suggest</p> <p>2 that there may be a small positive association</p> <p>3 between the use of genital powder and ovarian cancer</p> <p>4 (Wentzensen and O'Brien 2021).</p> <p>5 Do you agree that Wentzensen and O'Brien</p> <p>6 2021 state that?</p> <p>7 A. They report on that. I don't know why</p> <p>8 that's cited but...</p> <p>9 Q. Okay. And none of these inflammatory</p> <p>10 articles that I have shown you today influence your</p> <p>11 decision -- your opinion that talc does not reach</p> <p>12 the ovary and talc does not cause inflammation and</p> <p>13 the inflammation does not cause ovarian cancer?</p> <p>14 A. Correct. My opinion has not changed.</p> <p>15 MS. THOMPSON: Was there a decision made</p> <p>16 about --</p> <p>17 MR. JAMES: Yes. We are going to object to</p> <p>18 two attorneys taking the deposition because we</p> <p>19 clarified today that she's not designated in the</p> <p>20 MCL, and so that has not been done in any prior</p> <p>21 cases for experts that are not designated.</p> <p>22 I know you mentioned Sutcliffe but my</p> <p>23 understanding is she's designated in both, but to</p> <p>24 the extent that did happen at Sutcliffe, that's</p> <p>25 dissimilar from this situation, and that's our</p>	<p style="text-align: right;">Page 277</p> <p>1 BY MS. THOMPSON:</p> <p>2 Q. Dr. Permuth, this is your list of all the</p> <p>3 case-specific and cohort studies, correct?</p> <p>4 A. Case-control and cohort.</p> <p>5 Q. I said case specific. Case-control and</p> <p>6 cohort studies.</p> <p>7 A. Yes.</p> <p>8 Q. And in the column "Talc on perineum" you are</p> <p>9 considering any study on that list that is not</p> <p>10 statistically significant as a negative study,</p> <p>11 correct, or no association?</p> <p>12 A. Correct.</p> <p>13 Q. And the only two that have a risk ratio less</p> <p>14 than 1, if I'm correct, are the Wong study that's</p> <p>15 .92, and the Merritt study -- let me make sure I am</p> <p>16 seeing across. It's kind of small.</p> <p>17 And the Goodman study, .99.</p> <p>18 A. So Wong, Goodman --</p> <p>19 Q. Is .92, and Goodman .9. Are there any</p> <p>20 others with the actual risk ratio less than 1?</p> <p>21 A. Gonzalez.</p> <p>22 Q. I was looking -- talking about the</p> <p>23 case-control studies.</p> <p>24 A. Oh, yes.</p> <p>25 Q. But Gonzalez as the cohort also. And the</p>

<p style="text-align: right;">Page 278</p> <p>1 rest of the studies have a risk ratio above 1 but</p> <p>2 some are statistically significant and there are</p> <p>3 ones that are not, correct?</p> <p>4 A. I was just going to note that the confidence</p> <p>5 intervals for many studies are -- you know, include</p> <p>6 as a lower limit estimates below 1.</p> <p>7 Q. Right. And that's what you're calling not</p> <p>8 statistically significant?</p> <p>9 A. Correct.</p> <p>10 Q. Correct. And that to you is a negative</p> <p>11 study, no association?</p> <p>12 A. No association, yes.</p> <p>13 Q. Okay. Is it your opinion that these studies</p> <p>14 are inconsistent?</p> <p>15 A. Yes in that we see inconsistency across</p> <p>16 designs in terms of the magnitude of effects and the</p> <p>17 fact that prospective cohorts are not statistically</p> <p>18 significant. Those studies and the case-control</p> <p>19 studies, some of them, show weak associations.</p> <p>20 Others do not show any associations that are</p> <p>21 significant.</p> <p>22 MS. THOMPSON: This will be Exhibit 38.</p> <p>23 (Permuth Exhibit 38 was marked for identification.)</p> <p>24 BY MS. THOMPSON:</p> <p>25 Q. Are you familiar with this paper?</p>	<p style="text-align: right;">Page 280</p> <p>1 A. Correct.</p> <p>2 Q. So it starts out: When was the last time</p> <p>3 you heard a seminar speaker claim there was no</p> <p>4 difference between two groups because the difference</p> <p>5 was statistically not significant?</p> <p>6 And that was where you would fall today in</p> <p>7 your discuss, right?</p> <p>8 A. Yes.</p> <p>9 Q. Going on to the next paragraph: For several</p> <p>10 generations, researchers have been warned that a</p> <p>11 statistically nonsignificant result does not prove</p> <p>12 the null hypothesis (the hypothesis that there is no</p> <p>13 difference between groups or no effect of a</p> <p>14 treatment on some measures outcome).</p> <p>15 And that's where you would fall, right?</p> <p>16 A. Correct.</p> <p>17 Q. Okay. And then under the paragraph</p> <p>18 Pervasive Problem: Let's be clear about what must</p> <p>19 stop: we should never conclude that there is no</p> <p>20 difference or no association just because a p value</p> <p>21 is larger than a threshold or, equivalently, because</p> <p>22 a confidence interval includes zero. Neither should</p> <p>23 we conclude that two studies conflict because one</p> <p>24 had a statistically significant result and the other</p> <p>25 did not.</p>
<p style="text-align: right;">Page 279</p> <p>1 A. Yes.</p> <p>2 Q. I believe this was on your reliance,</p> <p>3 materials considered.</p> <p>4 A. Yes.</p> <p>5 Q. I just want to go over this study or this</p> <p>6 editorial commentary published in 2019 in Nature,</p> <p>7 correct?</p> <p>8 A. Yes.</p> <p>9 Q. And the authors are Amrhein, Greenland and</p> <p>10 McShane. Are you familiar with those</p> <p>11 epidemiologists?</p> <p>12 A. Yes.</p> <p>13 Q. And I want to go through this study with you</p> <p>14 and see where you stand on this comment.</p> <p>15 There are 800 signatories for a call -- that</p> <p>16 signed for a call for an end to hyped claims and the</p> <p>17 dismissal of possibly crucial effects.</p> <p>18 Is the -- under "Retire statistical</p> <p>19 significance" -- let me just read it.</p> <p>20 Valetin Amrhein, Sander Greenland, Blake</p> <p>21 McShane and more than 800 signatories call for an</p> <p>22 end to hyped claims and the dismissal of possibly</p> <p>23 crucial effects.</p> <p>24 You were not one of those 800 signatories,</p> <p>25 correct?</p>	<p style="text-align: right;">Page 281</p> <p>1 But that's exactly what you've done today.</p> <p>2 Do you agree?</p> <p>3 MR. JAMES: Just objection to the form.</p> <p>4 A. I think what I've done today and in my</p> <p>5 report is consider several lines of evidence and</p> <p>6 several criteria, one of which is statistical</p> <p>7 significance.</p> <p>8 Q. But you have testified that you consider a</p> <p>9 study that's not statistically significant to be</p> <p>10 negative or indicate no association, correct?</p> <p>11 A. I have.</p> <p>12 Q. Okay. Going on to further down in Column 1</p> <p>13 on the second page: It is ludicrous to conclude</p> <p>14 that the statistically nonsignificant results showed</p> <p>15 no association when the interval estimate included</p> <p>16 serious risk increases.</p> <p>17 You would agree that ovarian cancer is a</p> <p>18 serious risk, wouldn't you?</p> <p>19 MR. JAMES: Just objection to the form.</p> <p>20 A. I would say ovarian cancer is a serious</p> <p>21 disease.</p> <p>22 Q. Okay. Don't you think that's what that's</p> <p>23 referring to as far as serious risk --</p> <p>24 A. Not sure.</p> <p>25 Q. -- serious risk of a -- or risk of a serious</p>

<p style="text-align: right;">Page 282</p> <p>1 disease?</p> <p>2 A. I'm not sure.</p> <p>3 Q. Okay. And then the table or the diagram</p> <p>4 "Beware False Conclusions," and it shows two points,</p> <p>5 one statistically significant and one not, and</p> <p>6 states: The observed effect (or point estimate) is</p> <p>7 the same in both studies, so they are not in</p> <p>8 conflict, even if one is significant and the other</p> <p>9 is not.</p> <p>10 But you would consider those in conflict,</p> <p>11 wouldn't you?</p> <p>12 MR. JAMES: Just objection to form.</p> <p>13 A. I don't know if I would consider them in</p> <p>14 conflict. I'd be looking at statistical</p> <p>15 significance as well as other factors. It depends</p> <p>16 on context and what we're talking about.</p> <p>17 Q. Okay.</p> <p>18 A. And I would also note, you know, there is</p> <p>19 another editorial that talks about statistical</p> <p>20 significance and other viewpoints that is also in</p> <p>21 this journal.</p> <p>22 Q. And Exhibit 39, Rothman, "Six Persistent</p> <p>23 Research Misconceptions."</p> <p>24 (Permuth Exhibit 39 was marked for identification.)</p> <p>25 BY MS. THOMPSON:</p>	<p style="text-align: right;">Page 284</p> <p>1 misconception, is he not?</p> <p>2 A. It looks like it.</p> <p>3 Q. Okay. And then the next page, in the second</p> <p>4 paragraph on the first column: Similarly,</p> <p>5 discrepancies between cohort studies and</p> <p>6 case-control studies should not be explained away</p> <p>7 superficially by a presumed validity advantage for</p> <p>8 cohort studies over case-control studies.</p> <p>9 You have done that, haven't you, in your</p> <p>10 report and your testimony?</p> <p>11 MR. JAMES: Just hold on, please. Just</p> <p>12 objection to the form there.</p> <p>13 A. I do not believe I've superficially</p> <p>14 explained away anything. I think recall bias is</p> <p>15 real and it is one of the limitations of</p> <p>16 case-control studies.</p> <p>17 Q. Okay. Let's take away superficially and say</p> <p>18 you do presume there's a validity advantage for</p> <p>19 cohort studies over case-control studies; is that</p> <p>20 correct?</p> <p>21 A. I do.</p> <p>22 Q. Okay. And Dr. Rothman states that:</p> <p>23 Epidemiologists today understand case-control</p> <p>24 studies to be conceptually identical to cohort</p> <p>25 studies, apart from the efficiency gain that comes</p>
<p style="text-align: right;">Page 283</p> <p>1 Q. Have you seen this paper?</p> <p>2 A. I don't recall it offhand.</p> <p>3 Q. Published in 2014 by Dr. Rothman, who we've</p> <p>4 already talked about, and you do know that</p> <p>5 Dr. Rothman is an expert for the plaintiffs in this</p> <p>6 litigation?</p> <p>7 A. I do.</p> <p>8 Q. But this was certainly before he came on</p> <p>9 board as a plaintiff expert, you would agree, 2014?</p> <p>10 MR. JAMES: Just objection; speculation.</p> <p>11 A. Could you repeat that? I'm sorry.</p> <p>12 Q. Do you know whether this paper was published</p> <p>13 before Dr. Rothman became an expert for the</p> <p>14 plaintiffs?</p> <p>15 A. I don't know when he became an expert for</p> <p>16 the plaintiffs.</p> <p>17 Q. So Misconception Number 1: There is a</p> <p>18 hierarchy of study designs; randomized trials</p> <p>19 provide the greatest validity, followed by cohort</p> <p>20 studies, with case-control studies being least</p> <p>21 reliable.</p> <p>22 That's what you've testified and written in</p> <p>23 your report, correct?</p> <p>24 A. It is what I have in my report, correct.</p> <p>25 Q. And Dr. Rothman is calling that hierarchy a</p>	<p style="text-align: right;">Page 285</p> <p>1 from sampling the denominators rather than</p> <p>2 conducting a complete census.</p> <p>3 You disagree with Dr. Rothman with that</p> <p>4 statement?</p> <p>5 A. I do. It depends on what he's talking about</p> <p>6 in the context. If he's talking about a nested</p> <p>7 case-control study, there might be some similarity,</p> <p>8 but he's not calling that out here.</p> <p>9 Q. Yeah. He doesn't specify what case-control</p> <p>10 study?</p> <p>11 A. No. No.</p> <p>12 Q. And the final sentence in that misconception</p> <p>13 that there's a hierarchy of study designs with</p> <p>14 cohort being more valid than case-control study, the</p> <p>15 final sentence says: The type of study should not</p> <p>16 be taken as a guide to a study's validity.</p> <p>17 That's what you've done, though, hasn't it?</p> <p>18 MR. JAMES: Just objection to the form</p> <p>19 there.</p> <p>20 A. I have considered study design, as have many</p> <p>21 others, and, you know, I also in my report cite</p> <p>22 Dr. Oleckno, who is a well-known epidemiologist as</p> <p>23 well, who has talked about the hierarchy of evidence</p> <p>24 with study designs and validity and basically does</p> <p>25 comment on randomized trials followed by prospective</p>

<p style="text-align: right;">Page 286</p> <p>1 studies being most valid.</p> <p>2 Q. Let's go to Misconception 6: Significance</p> <p>3 testing is useful and important for the</p> <p>4 interpretation of data.</p> <p>5 And Dr. Rothman is considering that a</p> <p>6 misconception. Do you agree?</p> <p>7 MR. JAMES: I'm sorry. Did you say</p> <p>8 Number 6?</p> <p>9 MS. THOMPSON: Misconception 6:</p> <p>10 Significance testing is useful and important for</p> <p>11 the interpretation of data.</p> <p>12 A. I see that. Was there a question?</p> <p>13 Q. Yes. Do you disagree with Dr. Rothman's</p> <p>14 misconception that significance testing is useful</p> <p>15 and important for the interpretation of data?</p> <p>16 MR. JAMES: Just objection to form.</p> <p>17 A. I believe it's important and no journal --</p> <p>18 you will name one, but I will say very few journals</p> <p>19 that are high profile would allow a paper to be</p> <p>20 published that doesn't comment on statistical</p> <p>21 significance.</p> <p>22 Q. Okay. Let's go in this Misconception</p> <p>23 Number 6, on the second column, beginning with "It</p> <p>24 is unfortunate that a confidence interval." He</p> <p>25 makes the statement: Significance tests are a poor</p>	<p style="text-align: right;">Page 288</p> <p>1 MR. JAMES: Objection to the form, please.</p> <p>2 A. Throughout my report I present all parameter</p> <p>3 estimates, which do vary throughout study designs.</p> <p>4 I also report statistical significance. I also</p> <p>5 comment on other criteria throughout. So I'm</p> <p>6 looking at the full range of things, not just</p> <p>7 statistical significance, including biological</p> <p>8 plausibility, as well as coherence and other</p> <p>9 factors.</p> <p>10 Q. But you've already stated that an increased</p> <p>11 risk ratio that's not statistically significant you</p> <p>12 consider no association or a negative study,</p> <p>13 correct?</p> <p>14 A. I consider it to be no association, correct.</p> <p>15 Q. This is another paper from Dr. Rothman</p> <p>16 titled "Causation and Causal Inference in</p> <p>17 Epidemiology."</p> <p>18 MS. THOMPSON: This we'll mark as</p> <p>19 Exhibit 40.</p> <p>20 (Permut Exhibit 40 was marked for identification.)</p> <p>21 BY MS. THOMPSON:</p> <p>22 Q. Have you seen this paper?</p> <p>23 A. I don't believe so.</p> <p>24 Q. Ready? And I missed it. Did you say you</p> <p>25 had seen this paper?</p>
<p style="text-align: right;">Page 287</p> <p>1 classification scheme for study results; strong</p> <p>2 effects may be incorrectly interpreted as null</p> <p>3 findings because authors fallaciously interpret lack</p> <p>4 of statistical significance to imply lack of effect,</p> <p>5 or weak effects may be incorrectly interpreted as</p> <p>6 important because they are statistically</p> <p>7 significant.</p> <p>8 Do you agree or disagree with that?</p> <p>9 A. I disagree.</p> <p>10 Q. And the bottom sentence on that page: Every</p> <p>11 day there are important, regrettable and avoidable</p> <p>12 misinterpretations of data that results from the</p> <p>13 confusing fog of statistical significance testing.</p> <p>14 Do you agree or disagree with that</p> <p>15 statement?</p> <p>16 MR. JAMES: Just objection to form.</p> <p>17 A. I disagree with that.</p> <p>18 Q. In the conclusion, five or six lines down:</p> <p>19 It is easy to declare that a result is not</p> <p>20 statistically significant, falsely implying that</p> <p>21 there is no indication of an association, rather</p> <p>22 than to consider quantitatively the range of</p> <p>23 associations that the data actually support.</p> <p>24 Isn't that what you did when you considered</p> <p>25 the case-control studies in this case?</p>	<p style="text-align: right;">Page 289</p> <p>1 A. I don't recall seeing this one.</p> <p>2 Q. Okay. Under the heading Multicausality: A</p> <p>3 given disease can be caused by more than one causal</p> <p>4 mechanism, and every causal mechanism involves the</p> <p>5 joint action of a multitude of component causes.</p> <p>6 Do you agree with that statement?</p> <p>7 MR. JAMES: Just objection to the form.</p> <p>8 A. For the most part, that can be true, but</p> <p>9 there are certain situations where there is what we</p> <p>10 call a sufficient cause of disease, and I believe,</p> <p>11 if I had time to look at this article, they define</p> <p>12 that. It's a complete causal mechanism and, you</p> <p>13 know, an example of that would be like human</p> <p>14 papillomavirus in cervical cancer, for example.</p> <p>15 Q. Are there any complete causes that you would</p> <p>16 consider -- let me start all over.</p> <p>17 Are there any complete causes of ovarian</p> <p>18 cancer?</p> <p>19 MR. JAMES: Objection, I think asked and</p> <p>20 answered this morning, but I could be wrong.</p> <p>21 A. So "complete" I mention because that's in</p> <p>22 the text in the third column on the first page.</p> <p>23 When I think about causal inference and factors that</p> <p>24 pose the greatest risk, we talked about hereditary</p> <p>25 factors earlier today.</p>

<p style="text-align: right;">Page 290</p> <p>1 Q. But you would agree even BRCA 1 and 2, not</p> <p>2 all BRCA 1 and BRCA 2 women develop ovarian cancer,</p> <p>3 correct?</p> <p>4 A. Correct, not all women with BRCA 1 and 2</p> <p>5 mutations develop ovarian cancer, so there's not</p> <p>6 what we call 100 percent penetrance.</p> <p>7 Q. And you would consider that different from</p> <p>8 HPV and cervical cancer, correct?</p> <p>9 MR. JAMES: Objection to form.</p> <p>10 A. It's different in a way.</p> <p>11 Q. Because virtually 100 percent of HPV --</p> <p>12 squamous cervical cancer is caused by HPV, would you</p> <p>13 agree?</p> <p>14 A. I would say -- I don't know if it's 100. I</p> <p>15 believe it's pretty darn close to it. If a woman</p> <p>16 has cervical cancer, likelihood says that HPV</p> <p>17 infection of certain oncogenic types were involved.</p> <p>18 Q. In the second column in the same section:</p> <p>19 The importance of multicausality is that most</p> <p>20 identified causes are neither necessary nor</p> <p>21 sufficient to produce disease. Nevertheless, a</p> <p>22 cause need not be either necessary or sufficient for</p> <p>23 its removal to result in disease prevention.</p> <p>24 Would you agree with that statement from</p> <p>25 Dr. Rothman?</p>	<p style="text-align: right;">Page 292</p> <p>1 heading "Sum of Attributable Fractions." I'm</p> <p>2 looking at the last sentence, first paragraph of</p> <p>3 second column: In fact, since diet, smoking,</p> <p>4 asbestos, and various occupational exposures, along</p> <p>5 with other factors, interact with one another and</p> <p>6 with genetic factors to cause cancer, each case of</p> <p>7 cancer could be attributed repeatedly to many</p> <p>8 separate component causes. The sum of disease</p> <p>9 attributable to various component causes thus has no</p> <p>10 upper limit.</p> <p>11 Would you agree with that statement?</p> <p>12 MR. JAMES: Just objection to form.</p> <p>13 A. I think it's context dependent. It depends</p> <p>14 on what type of cancer we're taking about, what kind</p> <p>15 of factors may be acting together.</p> <p>16 Q. Would you agree that a patient, a woman with</p> <p>17 endometriosis or cancer arising from endometriosis,</p> <p>18 could also have obesity which presented a risk</p> <p>19 factor as well?</p> <p>20 A. That could be possible.</p> <p>21 Q. And a woman with BRCA -- a strong risk, you</p> <p>22 would agree, correct?</p> <p>23 A. Yes.</p> <p>24 Q. Could also have obesity, a much smaller,</p> <p>25 weaker association or risk, agree?</p>
<p style="text-align: right;">Page 291</p> <p>1 MR. JAMES: Just object to form.</p> <p>2 A. I think it's context dependent. It depends</p> <p>3 on the factor that we're talking about.</p> <p>4 Q. What do you think Dr. Rothman is trying to</p> <p>5 say with that sentence, or do you not have a</p> <p>6 comment?</p> <p>7 A. I'm not sure. I would want to look at this</p> <p>8 article in its totality before commenting on that.</p> <p>9 Q. And do you agree that in the third column --</p> <p>10 and I wish we had time to read that whole report out</p> <p>11 loud, the whole paper out loud, but I'm selecting</p> <p>12 things that I think are particularly relevant to the</p> <p>13 case at hand.</p> <p>14 In the third column: The reason is that</p> <p>15 given a specific causal mechanism, any of the</p> <p>16 component causes can have strong or weak effects.</p> <p>17 Do you agree with that statement?</p> <p>18 A. Again, context dependent.</p> <p>19 Q. And do you have any comment on what you</p> <p>20 think Dr. Rothman is trying to say with that</p> <p>21 statement?</p> <p>22 A. I don't want to speculate.</p> <p>23 MR. JAMES: You saved me from my objection.</p> <p>24 THE WITNESS: Sorry.</p> <p>25 Q. Going over to the next page, under the</p>	<p style="text-align: right;">Page 293</p> <p>1 A. I'm not following that sentence or that</p> <p>2 question.</p> <p>3 Q. A women can have BRCA -- and you said</p> <p>4 obesity is causal in your mind or one that can</p> <p>5 contribute to cause. A women could have BRCA and</p> <p>6 obesity could also be contributing to her cause of</p> <p>7 ovarian cancer, would you agree?</p> <p>8 A. If you're asking if there are multiple risk</p> <p>9 factors that a particular woman could have that</p> <p>10 could contribute to her disease, yes, that is</p> <p>11 possible, and as a genetic counselor, that's what</p> <p>12 I'm always considering.</p> <p>13 Q. And multiple causal factors?</p> <p>14 A. Yes, multiple factors that can contribute to</p> <p>15 the cancer.</p> <p>16 Q. The development?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. We're on the same page then.</p> <p>19 In the third column: Many researchers have</p> <p>20 spent considerable effort in developing hereditary</p> <p>21 indices which are supposed to measure the fraction</p> <p>22 of disease that is inherited. Unfortunately, these</p> <p>23 indices only assist the relative role of</p> <p>24 environmental and genetic causes of disease in a</p> <p>25 particular setting. For example, some genetic</p>

<p style="text-align: right;">Page 294</p> <p>1 causes may be necessary components of every causal 2 mechanism. 3 Would you agree with that statement? 4 A. I would say for the most part, yes, but a 5 lot of it depends on what we're talking about. I'd 6 have to get into more genetics to explain why I say 7 that. 8 Q. And in the -- and Dr. Rothman has a 9 discussion of Bradford Hill in this paper, correct? 10 A. It looks to be the case, yes. 11 Q. Which we're not going to go into in detail, 12 but under the heading -- the final heading "Criteria 13 to Judge Whether Scientific Evidence is Valid" -- 14 A. I'm looking for that right now. 15 Q. Last page. 16 A. Okay. Yes. The last page of the article. 17 Q. It states: Some of the difficulty can be 18 understood by taking the view that scientific 19 evidence can usually be viewed as a form of 20 measurement. If an epidemiologic study sets out to 21 assess the relation between exposure to tobacco 22 smoke and lung cancer risk, the results can and 23 should be framed as a measure of causal effect, such 24 as the ratio of the risk of lung cancer among 25 smokers to the risk among nonsmokers.</p>	<p style="text-align: right;">Page 296</p> <p>1 cancer. Have you seen this? I believe it's on your 2 reliance. 3 A. I believe so. 4 Q. Narod does publish a lot. In fact, he's one 5 of the most cited epidemiologists in the field, 6 would you agree? 7 MS. THOMPSON: We'll mark this as 8 Exhibit 41. 9 A. I agree. 10 (Discussion off the record.) 11 (Permuth Exhibit 41 was marked for identification.) 12 BY MS. THOMPSON: 13 Q. Okay. Does this paper look familiar? 14 A. Yes. 15 Q. And it starts out by saying -- well, let's 16 go to the top of the second column under 17 the introduction, first page. Narod states: The 18 case-control studies to date -- 19 This was published in Gynecologic Oncology 20 in 2016. Agree? 21 A. Yes, it was. 22 Q. The case-control studies to date are 23 consistent; given the small effect size it is not 24 surprising that some are positive (i.e., show a 25 significant increase in risk) and some are negative</p>
<p style="text-align: right;">Page 295</p> <p>1 Do you agree with that statement? 2 MR. JAMES: Just objection to form. 3 A. I'm not sure where he's going with this but 4 there's nothing glaringly wrong with that statement. 5 Q. I think he's going to the causal effect with 6 an epidemiologic study. 7 A. Right. 8 Q. Is that how you interpret that? 9 A. I'm just not -- 10 MR. JAMES: Just objection; speculation. 11 A. I'm not seeing any incorporation of 12 commentary about bias or confounding, but again, 13 this is the first time I've seen this article. 14 Q. And there is a discussion further down: In 15 addition to statistical error, the measurement error 16 subsumes problems that relate to study design, 17 including subject selection and retention, 18 information acquisition, and uncontrolled 19 confounding and other sources of bias. 20 A. Right. 21 Q. Okay. You're familiar with the Narod 22 article, aren't you? 23 A. Narod publishes a lot. Which article are we 24 talking about? 25 Q. The one that's related to talc and ovarian</p>	<p style="text-align: right;">Page 297</p> <p>1 (i.e., show a nonsignificant increase in risk or no 2 risk difference). Some say, based on this data, 3 that there is little or no evidence that talc is 4 associated with ovarian cancer. 5 And you would be included in the "some say," 6 would you agree? 7 MR. JAMES: Just object to form. 8 A. I would agree with that and I would say, 9 again, it's based on statistical significance and 10 other criteria that we've talked about today. 11 Q. Okay. And then Narod goes on to say: This 12 is a conservative opinion based on an uncompromising 13 interpretation of statistics and a demand for proof. 14 Would you agree that that's what you have 15 done? 16 MR. JAMES: Just objection to form, please. 17 A. I think that's strong language. I don't 18 think it's an uncompromising interpretation of 19 statistics. 20 Q. For the sake of argument, let us suppose 21 that the true risk ratio for ever use of talc and 22 the development of ovarian cancer is 1.2. 23 And that is Dr. Narod's hypothetical, not 24 mine. 25 And he goes on to say that -- talking about</p>

<p style="text-align: right;">Page 298</p> <p>1 the Nurses' Health Study -- that: There was no 2 overall association with ever-use, 1.09 -- this is 3 Gertig -- but there was a modest and significant 4 increased risk for serous cancer, 1.40. These 5 figures could be dismissed as nonsignificant or as 6 due to chance, but if the real risk in fact was 1.2, 7 this is about what we would expect. 8 Do you disagree with Dr. Narod's analysis? 9 A. I'm just back a few sentences where it's 10 talking about the 20 percent risk beyond the 11 baseline, it would be challenging to convince the 12 community that there is danger. If you could repeat 13 your sentence or your question. 14 Q. Well, let's talk about that. Do you think a 15 .2 risk of ovarian cancer attributable to talc use, 16 do you think it would be difficult to convince the 17 public that that would be a concern? 18 MR. JAMES: Just object to form. 19 A. Based on the lack of scientific evidence and 20 plausibility to support that, yes, I think it would, 21 and that's why it's not a discussion with patients, 22 or it hasn't been historically, to avoid talc. 23 Q. But you're disagreeing with Dr. Narod. 24 Dr. Narod is not saying what you just said, is he? 25 MR. JAMES: Object to form.</p>	<p style="text-align: right;">Page 300</p> <p>1 significance in a prospective study, we need a much 2 larger cohort, e.g., we will need to study upwards 3 of 200,000 women for 10 years. 4 Next paragraph: Given this inherent 5 limitation of cohort studies, it is not surprising 6 that we have not been able to confirm the 7 case-control studies with prospective studies, but 8 this does not mean that the case-control studies 9 were wrong. 10 Do you agree with Dr. Narod's analysis? 11 A. No, I don't, and I think it's impractical 12 and not necessary to have upwards of 200,000 women 13 for 10 years to achieve statistical significance. 14 Q. Further down: In studies where simple 15 exposures that are coded as never/ever use recall 16 bias is unlikely to be an important source of bias. 17 Do you agree with Dr. Narod? 18 A. I'm trying to find where you are at. 19 Q. That same paragraph, towards the bottom. 20 A. The paragraph starting with "Prospective 21 observational studies," or "Given this inherent 22 limitation," which paragraph? 23 Q. It was in the first column, the second full 24 paragraph, towards the bottom: In studies where 25 simple exposures that are coded as never/ever --</p>
<p style="text-align: right;">Page 299</p> <p>1 A. I don't know. That's speculative. I'm not 2 quite sure. 3 Q. Okay. Let's just continue reading then. 4 A. Sure. 5 Q. Neither prospective study confirmed the 6 association of talc use and ovarian cancer by the 7 case-control studies, but, either study was powered 8 to detect a risk of 1.2 and therefore we cannot 9 exclude the possibility. 10 A. I'm catching up to where you're at. 11 Q. I'm in the first paragraph -- that first 12 paragraph on the second page. 13 A. Right. And I know Berge has done power 14 calculations and showed adequate power, so I'm 15 trying to see or note what the differences are, but 16 anyway. 17 Q. Well, Berge was a meta-analysis, correct? 18 A. Yes, it is, but they also did power analyses 19 based on the prospective cohort. 20 Q. Dr. Narod is talking about the two 21 individual cohort studies, not a meta-analysis of 22 cohorts, correct? 23 A. It looks like it here. 24 Q. Okay. In order to -- the bottom of that 25 paragraph: In order to achieve statistical</p>	<p style="text-align: right;">Page 301</p> <p>1 And you will agree the cohort studies were 2 primarily coded as never/ever, correct? 3 A. Case-control as well. Okay. I see where 4 you are now. 5 Q. Recall bias is unlikely to be an important 6 cause of bias. 7 A. I don't agree with that. 8 Q. Okay. At the bottom of that column: It is 9 unlikely that the association between talc and 10 ovarian cancer is due to confounding and so it is 11 fair to say that if there is a statistically robust 12 relationship between talc and ovarian cancer, it is 13 likely to be causal (albeit with intermediate 14 factors such as inflammation). 15 Another mention of inflammation. Do you 16 disagree with Dr. Narod? 17 A. Yes. 18 Q. And: In any case, given the number of 19 hazard ratios reported in the literature between 1.1 20 -- I think that's supposed to be "and" 1.4 in both 21 case-control and cohort studies, it is disingenuous 22 to state that there is no evidence that talc is 23 associated with ovarian cancer. 24 That's your opinion, that there is no 25 evidence that talc is associated with ovarian</p>

<p style="text-align: right;">Page 302</p> <p>1 cancer, correct?</p> <p>2 A. I don't believe it's a true association.</p> <p>3 Q. And so you would disagree with Dr. Narod?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. And then again, at the top of the</p> <p>6 next column: It has been suggested that talc passes</p> <p>7 through the cervix and endometrium and becomes</p> <p>8 lodged in the fallopian tube where it induces an</p> <p>9 inflammatory reaction.</p> <p>10 We're back to Dr. Cramer's hypothesis,</p> <p>11 correct?</p> <p>12 MR. JAMES: Sorry. Objection to form.</p> <p>13 Q. This is actually citing Ness that we've also</p> <p>14 talked about.</p> <p>15 A. Yes.</p> <p>16 Q. And he goes on to say: This is</p> <p>17 hypothetical, but is supported by the observation of</p> <p>18 talc particles within the pelvic organs and fits</p> <p>19 with the paradigm that most serous ovarian cancers</p> <p>20 originate in the fallopian tube and that</p> <p>21 intraepithelial lesions in the fallopian epithelium</p> <p>22 are the earliest manifestations of an impending</p> <p>23 ovarian cancer.</p> <p>24 Do you disagree with Dr. Narod's plausible</p> <p>25 mechanism discussion?</p>	<p style="text-align: right;">Page 304</p> <p>1 suggesting that asbestos, if it's known, should be</p> <p>2 thrown around one's body and used because it's a</p> <p>3 known carcinogen for other cancer types.</p> <p>4 Q. Okay. But not ovarian, so the perineal use</p> <p>5 would not concern you?</p> <p>6 MR. JAMES: No. Objection to form;</p> <p>7 mischaracterizes her testimony.</p> <p>8 Q. Sorry if I mischaracterized. Is that what</p> <p>9 you said?</p> <p>10 A. I don't believe talc as a whole causes</p> <p>11 ovarian cancer.</p> <p>12 Q. With or without asbestos?</p> <p>13 MR. JAMES: Just objection to the form.</p> <p>14 A. And I talked today about the substance as a</p> <p>15 whole.</p> <p>16 Q. Okay. Have you seen --</p> <p>17 MS. THOMPSON: Well, let's mark 42.</p> <p>18 (Permuth Exhibit 42 was marked for identification.)</p> <p>19 BY MS. THOMPSON:</p> <p>20 Q. Have you seen this paper?</p> <p>21 A. I don't recall it at the moment.</p> <p>22 Q. This is a paper that discusses the</p> <p>23 characteristics of carcinogens as a basis for</p> <p>24 organizing data on mechanisms of carcinogenesis, and</p> <p>25 that's causing cancer, right?</p>
<p style="text-align: right;">Page 303</p> <p>1 MR. JAMES: Objection to form and that</p> <p>2 wording.</p> <p>3 A. I don't believe there is evidence showing</p> <p>4 that talc particles in pelvic organs have promoted</p> <p>5 ovarian cancer, so I don't agree with that.</p> <p>6 Q. And in the last paragraph: In the interest</p> <p>7 of public health, I believe we should caution women</p> <p>8 against using genital talcum powder.</p> <p>9 Dr. Narod, in 2016, you disagree with that,</p> <p>10 correct?</p> <p>11 A. Yes.</p> <p>12 Q. And you still, in 2024, would not caution</p> <p>13 women against using talcum powder; is that correct?</p> <p>14 A. Would I caution women?</p> <p>15 Q. Yes.</p> <p>16 A. I don't believe it's causal, so it's not a</p> <p>17 conversation I would have.</p> <p>18 Q. And would you not caution women against</p> <p>19 using talcum powder even if you knew that talcum</p> <p>20 powder obtained asbestos?</p> <p>21 MR. JAMES: Just objection to the form and</p> <p>22 the hypothetical.</p> <p>23 A. I mean, with regard to asbestos, we've</p> <p>24 talked about the fact that I don't believe it</p> <p>25 contributes to ovarian cancer, but I'm not</p>	<p style="text-align: right;">Page 305</p> <p>1 MR. JAMES: Margaret, do you happen to have</p> <p>2 a copy?</p> <p>3 MS. THOMPSON: If I -- no.</p> <p>4 MR. JAMES: What's the name of it?</p> <p>5 MS. THOMPSON: Smith, Key Characteristics of</p> <p>6 Carcinogens.</p> <p>7 MS. O'DELL: I'll send it to you.</p> <p>8 MR. JAMES: Okay.</p> <p>9 BY MS. THOMPSON:</p> <p>10 Q. And they describe: 10 key characteristics</p> <p>11 can provide a basis for systematically identifying,</p> <p>12 organizing, and summarizing mechanistic information</p> <p>13 as part of the carcinogen evaluation process.</p> <p>14 And it refers to the EPA, National</p> <p>15 Toxicology Program, IARC and others, and these are</p> <p>16 the -- without going into a lot of detail -- these</p> <p>17 are the 10 key characteristics of carcinogens, and</p> <p>18 the ones that I want to address that we have talked</p> <p>19 about today: Is genotoxic.</p> <p>20 It's your opinion that talc is not</p> <p>21 genotoxic, correct?</p> <p>22 A. That is correct.</p> <p>23 Q. It is your opinion that asbestos is</p> <p>24 genotoxic, correct?</p> <p>25 MR. JAMES: Just objection to form.</p>

<p style="text-align: right;">Page 306</p> <p>1 A. Yes, it's been observed in certain cancer 2 types. 3 Q. Another characteristic: It alters DNA 4 repair or causes genomic instability. 5 And we have seen evidence today of both talc 6 and asbestos altering DNA repair or causing genomic 7 instability, haven't we? 8 MR. JAMES: Objection; form, and objection; 9 asked and answered and misstates her prior 10 testimony. 11 A. No, I have not observed any evidence that 12 talc alters DNA repair or causes genomic 13 instability. 14 Q. You've seen evidence that asbestos does, 15 correct? 16 A. We saw that reported in the monograph but it 17 wasn't specific to ovarian cancer. 18 Q. Number 4: Induces epigenetic alterations. 19 You have seen evidence of that with talc 20 studies regardless of whether you consider them 21 reliable or not, correct? 22 MR. JAMES: Objection to form. Objection to 23 form. Objection; misstates prior testimony. 24 A. I have not seen evidence supporting talc 25 inducing epigenetic alterations.</p>	<p style="text-align: right;">Page 308</p> <p>1 MR. JAMES: Just objection to form. 2 A. We've seen review articles that suggest 3 that, but I haven't seen hard evidence of that. 4 Q. Number 7: Is immunosuppressive. 5 We've seen evidence of decreased 6 immunosurveillance and immune system dysfunction 7 with talc and asbestos, correct? 8 MR. JAMES: Same objection to the form, and 9 to the extent you're talking about prior 10 testimony, misstates prior testimony. 11 A. We cited limitations of articles that talk 12 about immunosuppressant as they relate to 13 macrophages. 14 Q. Okay. And then the final one: Alters cell 15 proliferation, cell death or nutrient supply. 16 We've talked about the increase 17 proliferation as a result of talc, correct? 18 A. That is purported. 19 Q. Purported. 20 MR. JAMES: And I'll get in my word here: 21 Same objections, objection to form, and to the 22 extent it's characterizing prior testimony, it 23 misstates prior testimony. 24 Q. I'm going to provide you with a flowchart 25 that is from your report. We'll mark it Exhibit 43.</p>
<p style="text-align: right;">Page 307</p> <p>1 Q. I believe one of our articles was actually 2 titled epigenetic alterations, correct? 3 A. Yes. I don't see evidence supporting that. 4 Q. You've seen literature, you just don't -- 5 A. I don't believe -- 6 Q. -- accept it? 7 A. Yes. 8 Q. Okay. Induces oxidative stress. 9 We've probably talked about that many times 10 today, correct, from papers? 11 A. Yeah, and I comment on my opinions and that 12 of other reviewers of articles by the Saed, et al., 13 team, about flaws in their data and their 14 interpretation and that talc does not induce 15 oxidative stress. 16 Q. Have we talked about Saed at all today? 17 A. No. I'm talking about I'm mentioning it in 18 my report. 19 Q. I'm asking about the other papers that we've 20 looked at today, and there were many, correct? 21 A. Yep, and nothing was compelling. 22 Q. And the same thing with Number 6: Induces 23 chronic inflammation. 24 We've talked about many studies saying talc 25 can induce chronic inflammation, correct?</p>	<p style="text-align: right;">Page 309</p> <p>1 (Permuth Exhibit 43 was marked for identification.) 2 BY MS. THOMPSON: 3 Q. And I don't have an extra copy but let's 4 mark 44 as the table in your report. So if you can 5 go to Page 149, I have some questions about both of 6 these. 7 Did you create this chart on Page 149, 8 Dr. Permuth? 9 A. Yes. 10 Q. Do you have a reference that you relied on 11 in creating this chart? 12 A. That's a great question. I created it a 13 while ago and it's likely based on some classic 14 textbooks of epidemiology. 15 MS. O'DELL: You guys, wait. Did you intend 16 to mark this separately, Margaret? 17 MS. THOMPSON: No. I'm referring her to her 18 report. 19 MR. JAMES: Dr. Permuth, I think she was 20 asking about your report chart on Page 149. 21 MS. O'DELL: Hang on. Let's go off the 22 record for a minute. 23 (Discussion off the record.) 24 BY MS. THOMPSON: 25 Q. Dr. Permuth, are you clear with my confusing</p>

<p style="text-align: right;">Page 310</p> <p>1 whatever question --</p> <p>2 A. Maybe we could start over.</p> <p>3 Q. Let's start all over.</p> <p>4 A. I know this is Exhibit 43 and it's a flow</p> <p>5 diagram.</p> <p>6 Q. This is Exhibit 43 which is a flow diagram</p> <p>7 that you created?</p> <p>8 A. Yes.</p> <p>9 Q. And we're going to Page 149 of your report</p> <p>10 for what I would consider a companion chart. Would</p> <p>11 you agree?</p> <p>12 A. Yes.</p> <p>13 Q. And you created both the flowchart and the</p> <p>14 chart on Page 149?</p> <p>15 A. I did.</p> <p>16 Q. And you don't have a citation on it and I</p> <p>17 think my question is do you have a reference for</p> <p>18 either one of these charts?</p> <p>19 A. Got it. So I filled out this chart with my</p> <p>20 assessment. This framework I would say is from</p> <p>21 classic epidemiologic textbooks, like from Oleckno,</p> <p>22 Gordis, others. I don't see a citation here but</p> <p>23 this is a framework that I used in epidemiology. As</p> <p>24 an epidemiologist, these are the things I think</p> <p>25 about when I'm evaluating statistical associations.</p>	<p style="text-align: right;">Page 312</p> <p>1 where it talks about after an ovarian cancer</p> <p>2 diagnosis, some women use talc, so, obviously, talc</p> <p>3 use did not precede the outcome.</p> <p>4 Q. And that's just his speculation, right? He</p> <p>5 does not have any evidence of patients in his</p> <p>6 meta-analysis that that was the case, correct?</p> <p>7 MR. JAMES: Objection to form.</p> <p>8 A. I don't have the article in front of me to</p> <p>9 comment on that.</p> <p>10 Q. Okay. "Could the association be spurious</p> <p>11 due to chance or bias?"</p> <p>12 That's the first one in your "Factors to</p> <p>13 Consider When Assessing the Reported Talc Ovarian</p> <p>14 Cancer Association."</p> <p>15 Do you think that all of the reported</p> <p>16 association between talcum powder and ovarian cancer</p> <p>17 could be due to chance or bias?</p> <p>18 A. I think those are really important factors</p> <p>19 to consider, yes.</p> <p>20 Q. And my question is could all of the reported</p> <p>21 association be due to chance or bias?</p> <p>22 MR. JAMES: Objection; asked and answered,</p> <p>23 form.</p> <p>24 A. Chance, bias, part of bias is measurement</p> <p>25 error, these are all things I talk about in my</p>
<p style="text-align: right;">Page 311</p> <p>1 Q. Okay. But you can't identify a scientific</p> <p>2 article that uses something similar to this chart</p> <p>3 that you've developed?</p> <p>4 MR. JAMES: Objection to the form and</p> <p>5 misstates the answer.</p> <p>6 MS. THOMPSON: Misstates the answer?</p> <p>7 A. Yeah. I just mentioned a couple books of</p> <p>8 epidemiology where the authors talk about a</p> <p>9 framework like this.</p> <p>10 Q. Okay.</p> <p>11 A. And I do cite Oleckno in my report, and</p> <p>12 Victor Schoenbach I cite in my report.</p> <p>13 Q. And if we go through some of these, we</p> <p>14 talked already about "Could the association be</p> <p>15 noncausal due to confounding or because the outcome</p> <p>16 preceded the exposure?"</p> <p>17 I believe you said -- are you still sticking</p> <p>18 with the outcome in some of these studies preceded</p> <p>19 the exposure?</p> <p>20 MR. JAMES: Objection to form.</p> <p>21 Q. Can we eliminate that one?</p> <p>22 MR. JAMES: Objection to form; misstates</p> <p>23 prior testimony.</p> <p>24 A. No, I don't want to eliminate anything. I</p> <p>25 believe we're referring to the Huncharek article</p>	<p style="text-align: right;">Page 313</p> <p>1 report.</p> <p>2 Q. Okay. I'm going to ask my question again.</p> <p>3 Could the association -- start all over.</p> <p>4 Could chance and bias -- I'm looking at your</p> <p>5 chart. I'm not making this up.</p> <p>6 Could all of the association seen and</p> <p>7 reported with talcum powder be due to chance and</p> <p>8 bias?</p> <p>9 MR. JAMES: Objection; form. Objection;</p> <p>10 asked and answered.</p> <p>11 A. If we look at the table, I talk about</p> <p>12 spurious associations due to chance and bias. I</p> <p>13 also talk about or refer to noncausal associations</p> <p>14 due to confounding. So that's another factor.</p> <p>15 Q. Do you think that all of the associations</p> <p>16 seen could be due to confounding?</p> <p>17 A. I think that's a main factor, just like I</p> <p>18 think chance and bias are.</p> <p>19 Q. And you know that the majority of the</p> <p>20 studies generally accounted for any known or</p> <p>21 suspected confounders, right?</p> <p>22 MR. JAMES: Objection; form, and objection;</p> <p>23 assumes facts not in evidence.</p> <p>24 A. Again, it depends on the study. Studies</p> <p>25 adjusted for various confounders. Some were more</p>

<p style="text-align: right;">Page 314</p> <p>1 comprehensive than others but it wasn't harmonized 2 across all these studies. 3 Q. What confounders are you thinking of that 4 could cause the association between talc and ovarian 5 cancer to be noncausal? 6 MR. JAMES: Objection to the phrase of the 7 association and form. Are you asking across all 8 studies? 9 MS. THOMPSON: I'm reading her chart. I'm 10 reading off her chart. "Could the 11 association..." It's her chart. 12 MR. JAMES: It's not the association. 13 You're assuming there is a talc association. 14 MS. THOMPSON: I'm reading off her chart and 15 the title of the chart is "Factors to Consider 16 When Assessing the Reported Talc Ovarian Cancer 17 Association." I'm reading directly from her 18 chart that says "Could the association be 19 noncausal due to confounding," and you can object 20 to the form but I'm reading it from her report. 21 BY MS. THOMPSON: 22 Q. Could the association, in your opinion, be 23 noncausal completely to confounding? 24 MR. JAMES: Okay. Objection; asked and 25 answered.</p>	<p style="text-align: right;">Page 316</p> <p>1 Q. And in your blue flowchart you have 2 parenthesis under "Is the magnitude of association 3 strong?" Odds ratio or relative risk greater than 4 or equal to 3. 5 Is that what you would consider a strong 6 association? 7 A. For this estimate I believe, you know, I'm 8 referring to a lot of literature that I've been 9 taught, and strong is typically an odds ratio or 10 relative risk over 3, so that's considered a higher 11 magnitude of association. 12 Q. And you think that's generally accepted by 13 the epidemiologic -- 14 A. I would say that's widely accepted. 15 Q. What's your source for that? 16 A. Some of the books that I've already referred 17 to by Oleckno and colleagues and Vic Schoenbach, 18 which I've cited. 19 Q. And you believe those say that -- 20 A. Yeah, and I believe if I -- if I, you know, 21 looked in my report, I would also have citations 22 too. 23 So it looks like I'm citing several things. 24 I'm looking those up. 25 Q. Dr. Permuth, let's go to -- let's go to the</p>
<p style="text-align: right;">Page 315</p> <p>1 A. I've talked about the fact that confounding 2 is likely a big contributor to reported 3 associations, as per this table, also chance and 4 bias. 5 Q. Okay. We're on confounding now. What 6 confounders are you thinking of? 7 A. Many that are measured and some that are 8 unmeasured or unknown, and I talk about this in the 9 report, but if you want me to rattle some off, I 10 can. 11 Q. I want you to rattle off the ones that you 12 think might be unknown. 13 MR. JAMES: Objection to form. 14 A. I think in -- I think there is so much yet 15 to be known in the cancer arena that is 16 environmental in nature, but in terms of what is 17 known that a lot of studies don't account for are 18 genetic and familial factors, demographic factors, 19 socioeconomic factors, conditions. 20 Q. And we'll skip "Did the exposure precede the 21 outcome," which you have "usually." 22 "Is the association strong?" 23 And your opinion is the association is not 24 strong with talc, correct? 25 A. Correct.</p>	<p style="text-align: right;">Page 317</p> <p>1 portion of your report where you deal with the 2 individual plaintiffs in this report. I believe it 3 begins on Page 144. 4 A. Sure. And if I just may add, I was 5 referring to and cited some texts that -- by 6 Schoenbach and others where I talk about magnitudes 7 of association on Page 119, so it wasn't coming out 8 of nowhere. 9 Okay. Case specific. 10 MR. JAMES: Did you say 144, Margaret? 11 MS. THOMPSON: 144. 12 A. Okay. 13 Q. Okay. Let's go ahead and start with 14 Ms. Bondurant, which is the one that you are 15 discussing first, and you say, with the SDHA 16 mutation that was detected in her germline and the 17 details of her family history, you believe the 18 possibility remains that SDHA could be linked to 19 ovarian cancer. 20 Is that what you stated? 21 A. It is. 22 Q. Do you have any evidence of that? 23 A. Yes. So in my report I cite how SDHA 24 mutations have actually been reported in a woman 25 with clear cell ovarian cancer and endometriosis,</p>

<p style="text-align: right;">Page 318</p> <p>1 which are similar to Ms. Bondurant. This, you know,</p> <p>2 this gene has definitely been implicated in ovarian</p> <p>3 tumorigenesis, so there is plausibility for how this</p> <p>4 mutation could contribute to the disease.</p> <p>5 Q. Where did you see a history of endometriosis</p> <p>6 in Ms. Bondurant?</p> <p>7 A. I believe I saw it several places. I looked</p> <p>8 through a lot of her records in terms of her medical</p> <p>9 records. I don't remember which one per se but</p> <p>10 endometriosis was mentioned several times.</p> <p>11 Q. In her medical records?</p> <p>12 A. Yes. It might have been pathology.</p> <p>13 Q. Has endometriosis ever been confirmed in</p> <p>14 Ms. Bondurant with pathology or visualization?</p> <p>15 A. I'm trying to remember. There were a lot of</p> <p>16 records that I've looked through between -- you</p> <p>17 know, I'd have to have them in front of me.</p> <p>18 Q. Okay.</p> <p>19 A. But I know it was clearly stated in several</p> <p>20 places.</p> <p>21 Q. Can you testify to a reasonable degree of</p> <p>22 medical certainty that the SDHA mutation contributed</p> <p>23 to her ovarian cancer?</p> <p>24 A. I believe it may have. I also believe that</p> <p>25 there could be a mutation in another gene that's yet</p>	<p style="text-align: right;">Page 320</p> <p>1 cause. Can you testify to a reasonable degree of</p> <p>2 medical certainty that the SDHA mutation was a cause</p> <p>3 of her ovarian cancer?</p> <p>4 A. Looking at her history and the fact that</p> <p>5 it's a pathogenic mutation, I do believe, with a</p> <p>6 certain degree of medical certainty, that this could</p> <p>7 have played a role in her diagnosis. That --</p> <p>8 Q. Could or did?</p> <p>9 A. May have.</p> <p>10 Q. And may not have?</p> <p>11 A. I can tell you one thing with a lot of</p> <p>12 certainty. The genetic makeup and familial</p> <p>13 predisposition, and her endometriosis, are all risk</p> <p>14 factors that far supersede any inconclusive data</p> <p>15 related to talc playing a role in her ovarian</p> <p>16 cancer.</p> <p>17 Q. So this SDHA mutation, you would say that</p> <p>18 there is more data as far as that being a causative</p> <p>19 factor for ovarian cancer than there is for talc?</p> <p>20 A. I'm saying that the evidence that a germline</p> <p>21 mutation in that gene or, as I say in my last</p> <p>22 statement on Ms. Bondurant, a yet-to-be-identified</p> <p>23 mutation causing hereditary breast and ovarian</p> <p>24 cancer, HBOC, the possibility remains that those</p> <p>25 items could have attributed -- been contributing to</p>
<p style="text-align: right;">Page 319</p> <p>1 to be identified. She has a significant family</p> <p>2 history of multiple types of cancers that are</p> <p>3 associated with the hereditary breast/ovarian cancer</p> <p>4 syndrome, so that should not be discounted.</p> <p>5 Q. Well, that wasn't my question, so I'll move</p> <p>6 to strike that.</p> <p>7 My question is can you testify to a</p> <p>8 reasonable degree of medical certainty that the SDHA</p> <p>9 mutation is a cause of her ovarian cancer?</p> <p>10 A. It has a strong likelihood of</p> <p>11 contributing -- having had contributed to her</p> <p>12 diagnosis.</p> <p>13 Q. So to a reasonable degree of medical</p> <p>14 certainty, it's a cause of her ovarian cancer?</p> <p>15 A. I don't know that it's the cause. I feel</p> <p>16 that there is a decent degree of medical certainty</p> <p>17 that it could have contributed to her diagnosis.</p> <p>18 She also has a significant family history that could</p> <p>19 have contributed to her diagnosis.</p> <p>20 Q. You understand why I need to have clarity on</p> <p>21 this opinion, correct? Because when you say it may</p> <p>22 have contributed, then I say it may not have as</p> <p>23 well, and for us to know what your opinion is going</p> <p>24 to be in trial, can you testify to a reasonable</p> <p>25 degree of medical history -- and I did not say the</p>	<p style="text-align: right;">Page 321</p> <p>1 her disease.</p> <p>2 Q. Can you say to a reasonable degree of</p> <p>3 medical certainty that an unknown genetic mutation</p> <p>4 is a cause of her ovarian cancer?</p> <p>5 A. I think the likelihood that a familial or</p> <p>6 hereditary predisposition played a really important</p> <p>7 role in her cancer.</p> <p>8 Q. More likely than not is a cause?</p> <p>9 A. Yes.</p> <p>10 Q. And that goes for the SDHA mutation,</p> <p>11 correct?</p> <p>12 A. Yes, I'm concerned about that mutation.</p> <p>13 Q. And that goes for an unknown genetic</p> <p>14 mutation, correct?</p> <p>15 A. That's a possibility and that's why that's</p> <p>16 in my --</p> <p>17 Q. I'm asking these questions for a reasonable</p> <p>18 degree of medical certainty and I understand that</p> <p>19 you want to use other words but I need to have what</p> <p>20 you're going to testify to in trial. Understood?</p> <p>21 Can you say to a reasonable degree of</p> <p>22 medical certainty that an unknown genetic mutation</p> <p>23 is a cause of Ms. Bondurant's ovarian cancer?</p> <p>24 MR. JAMES: Objection to the form, and asked</p> <p>25 and answered.</p>

<p style="text-align: right;">Page 322</p> <p>1 A. I guess all I can do is restate the last 2 sentence of my paragraph on Ms. Bondurant: The 3 possibility remains that her ovarian cancer is 4 linked to her SDHA germline mutation, her history of 5 endometriosis, and/or a yet-to-be-identified 6 mutation causing hereditary breast and ovarian 7 cancer. 8 Q. So your opinion is it's a possibility? 9 A. Yes. 10 Q. Okay. And you agree that Ms. Bondurant had 11 genetic testing performed, correct? 12 A. She did. 13 Q. And I'll hand you her -- what are your 14 criteria for HBOC as far as family history? Let's 15 start with that. 16 A. In terms of what might be present? So, 17 obviously, if a woman herself has a diagnosis of 18 ovarian cancer, that's concerning, and then if there 19 is a family history of ovarian cancer or breast 20 cancer, particularly at a young age, pancreatic 21 cancer can be in these families, colon cancer has 22 been reported. 23 So in her family history, there is a 24 maternal aunt with ovarian cancer, another one with 25 breast cancer, a maternal uncle with pancreatic</p>	<p style="text-align: right;">Page 324</p> <p>1 lot of records. 2 Q. And I'm just asking about the pathology 3 report that I handed to you. 4 A. I know. No, I don't see it on here but this 5 is just one record in a slew of many. 6 Q. It's her only pathology report, you would 7 agree? 8 A. For this case? 9 Q. For Ms. Bondurant. 10 A. I'm just trying to remember. Yeah, but I -- 11 Q. Is there a source for you -- that you use 12 for your definition of HBOC? 13 A. You know, these days the National 14 Comprehensive Cancer Network, or NCCN, is one of the 15 main sources. There is other -- I don't know. 16 There's other entities as well. 17 Q. And can you give me your definition? 18 A. Of hereditary breast and ovarian cancer? I 19 believe I commented and it's in my report that we 20 would be talking about related cancers, ovarian, 21 breast, other cancer types, such as pancreatic, in a 22 family where we see generations of individuals 23 typically affected with a certain cancer type. 24 Sometimes we see multiple cancer types in one 25 individual, sometimes we see a bilateral nature of</p>
<p style="text-align: right;">Page 323</p> <p>1 cancer, an uncle with colon cancer, a mother with an 2 ovarian tumor. We don't have the pathology on that. 3 It's reportedly benign. There is a lot of family 4 history of cancer in this family. 5 Q. And your increased risk of cancer is based 6 on multiple cancers in the family. You will agree 7 there is not a first-degree relative with a high 8 risk cancer, correct? 9 A. I don't know for sure what her mom had. It 10 says a benign ovarian tumor. We don't have more 11 data on that, but there are second-degree relatives 12 and we talked about that earlier today, in terms of 13 maternal aunts, one with breast, one with ovarian 14 cancer. 15 MS. THOMPSON: We'll mark Exhibit 44. 16 THE WITNESS: Thank you. 17 (Permut Exhibit 44 was marked for identification.) 18 BY MS. THOMPSON: 19 Q. This is the pathology report for 20 Ms. Bondurant. Is there any indication of 21 endometriosis on her pathology report? 22 A. I didn't see it on Page 1. It may not be in 23 the pathology report. I may have seen it in 24 clinical notes or on the plaintiff profile form. 25 There are, again, many plaintiffs. I looked at a</p>	<p style="text-align: right;">Page 325</p> <p>1 the cancer in the family, sometimes we see earlier 2 onset in the family. 3 Q. Do you agree that most of familial or HBOC 4 is due to a genetic mutation? 5 A. Most of familial HBOC is due to a mutation? 6 A significant proportion is. 7 Q. Let's talk about the next plaintiff that you 8 discuss, and that would be Ms. Converse, and 9 Ms. Converse is an Ashkenazi Jew, correct? 10 A. Yes. 11 Q. But she had a full panel of genetic testing, 12 do you agree? 13 A. She did. She had testing for the 14 foundation -- or the founder mutations in the 15 Ashkenazi Jewish population, and she had 16 comprehensive BRCA analysis and then additional 17 testing at Yale. 18 Q. And that testing was negative, correct? 19 A. Initial testing with Myriad Genetics was 20 negative, and she had testing at Yale which did show 21 variants of unknown significance in two genes. 22 Q. Do you have any evidence that the VUS in ATM 23 and TGFBR2 are related to ovarian cancer, pathogenic 24 for ovarian cancer? 25 A. It's unclear, as I said in my report, but</p>

<p style="text-align: right;">Page 326</p> <p>1 certainly variants in these genes have been seen in 2 families with ovarian cancer, particularly of the 3 clear cell type like she had, as well as breast 4 cancer. 5 Q. And what's your reference for that? 6 A. I believe I had a citation in here that I'm 7 not seeing right now, so I would have to look into 8 that. 9 Q. Yeah, I did not see a citation. 10 A. Yeah, I don't know if it was accidentally 11 deleted. 12 Q. Does ClinVar consider either of those a 13 deleterious VUS? 14 A. Not at this point. Science evolves. 15 Q. And do you plan to testify to a reasonable 16 degree of medical certainty that Ms. Converse has 17 HBOC? 18 A. Her family history is concerning for HBOC 19 given that her mom had early onset breast cancer and 20 that there is pancreatic cancer in her family and 21 they are Ashkenazi Jewish, and testing has evolved 22 since she had testing at Yale. 23 Q. Do you agree that the majority of Ashkenazi 24 Jewish women, the hereditary predisposition is 25 explained by BRCA 1 and BRCA 2 mutations?</p>	<p style="text-align: right;">Page 328</p> <p>1 personal history of ovarian cancer and family 2 history would suggest that this is a high-risk 3 family that should adhere to the management 4 recommendations of HBOC families. 5 What are those recommendations currently? 6 A. Close surveillance with breast imaging, and 7 depending on the age of the woman, if childbearing 8 is complete and that's an option, sometimes 9 prophylactic or preventative removal of the ovaries 10 is recommended. So those are all part of 11 discussions with a medical team that would be had. 12 Q. Would it also be recommended that she have a 13 salpingectomy if in that age group? 14 A. Potentially that's an appealing option for 15 some women. 16 Q. Let's move on to Ms. Judkins. 17 A. I would just say, too, my recommendation 18 does align with the genetics team at Yale. 19 Q. And Ms. Judkins was diagnosed with high 20 grade serous ovarian cancer at age 60, not 21 particularly young for ovarian cancer. You would 22 agree? 23 A. Right now I'm blanking on the median age. 24 Q. I think it's 63. Would that sound right? 25 A. So a little younger than that.</p>
<p style="text-align: right;">Page 327</p> <p>1 A. To date, yes, but now we're offering 2 multigene panel testing and I think we're going to 3 find in the future other mutations in other genes 4 are also important in that population. 5 Q. Do you plan to testify that any of these 6 plaintiffs had a mosaicism that could contribute to 7 or cause their ovarian cancer? 8 A. I haven't seen any data to suggest that at 9 this point. 10 Q. Is there any reason that a patient with a 11 deleterious mutation could not have other 12 contributing causative factors in their ovarian 13 cancer development? 14 A. They may have factors in addition to the 15 mutation, germline mutation. 16 Q. And I believe as we talked before, there may 17 be factors that are weaker than the genetic 18 mutation? 19 A. Yes. 20 Q. There might be a factor that's stronger than 21 a genetic mutation that's not known to be a 22 high-penetrant gene mutation, correct? 23 A. Potentially, although I don't know of one 24 offhand. 25 Q. Okay. And you say that her significant</p>	<p style="text-align: right;">Page 329</p> <p>1 Q. So a little younger but in the range -- 2 A. Yes. 3 Q. -- that is not considered two standard 4 deviations earlier or later. 5 And her only family history is breast cancer 6 in a paternal great aunt at unknown age. 7 Do you agree? 8 A. I go on to say -- oh, yeah, there was one 9 who may have been diagnosed in her sixties and then 10 maybe another paternal aunt who was deceased from 11 breast cancer, so it seems like two paternal aunts. 12 Q. But you would not consider that family 13 history suggestive of HBOC, would you? 14 A. Earlier onset is more suggestive, but the 15 fact that there is two paternal aunts I'd be looking 16 at closely. There's also a grandmother with 17 pancreatic cancer and then there are other cancer 18 types in the family, including bladder and kidney 19 cancer. 20 Q. Let's see. Do you consider that family 21 history -- do you consider that family history 22 indicative of an HBOC situation? 23 A. It could be but there's also a PTEN variant 24 that's been identified in the family. 25 Q. Yeah, we're going to talk about the PTEN</p>

<p style="text-align: right;">Page 330</p> <p>1 variant in a minute.</p> <p>2 Is it your opinion that the PTEN variant is,</p> <p>3 to a reasonable degree of medical certainty, a</p> <p>4 contributing cause of her ovarian cancer?</p> <p>5 A. It may have been.</p> <p>6 Q. To a reasonable degree of medical certainty</p> <p>7 is it a contributing cause?</p> <p>8 A. As I said, it may have been. It's a</p> <p>9 possibility.</p> <p>10 Q. Possibility?</p> <p>11 A. Especially when thinking about the location</p> <p>12 of the variant within the gene. It's in a really</p> <p>13 important part of the gene called a promoter.</p> <p>14 Q. So it may have been, it may not have been?</p> <p>15 A. I wish we knew things for certainty and I</p> <p>16 had a crystal ball to tell you, but I don't, but I</p> <p>17 do believe in science and the science is concerning.</p> <p>18 Q. And you do agree that Ms. Judkins does not</p> <p>19 have any evidence of Cowden syndrome, correct?</p> <p>20 A. You know, it's hard to say. Herself, I</p> <p>21 don't have records of any skin findings or other</p> <p>22 characteristics, but there are certain things in her</p> <p>23 family that also point to Cowden syndrome or having</p> <p>24 a germline PTEN mutation.</p> <p>25 Q. But not from Ms. Judkins herself, correct?</p>	<p style="text-align: right;">Page 332</p> <p>1 A. Clinically, there are certain cancer types</p> <p>2 that we see in the family, breast, thyroid, certain</p> <p>3 colon conditions, the kidney could be affected,</p> <p>4 there are certain skin tags, there are certain types</p> <p>5 of polyps that are hamartomatous in nature. So</p> <p>6 that's very specific.</p> <p>7 Again, I don't have all the records in the</p> <p>8 world about her or her family but what we do have is</p> <p>9 the genetic data, genetic data from her germline and</p> <p>10 then we do have some interesting data from her tumor</p> <p>11 testing at Myriad Genetics as well.</p> <p>12 Q. And what on her tumor testing</p> <p>13 is interesting?</p> <p>14 A. Her tumor testing from Myriad Genetics</p> <p>15 showed genomic instability associated with</p> <p>16 homologous recombination deficiency, and this is</p> <p>17 something that we see in BRCA families, as well as</p> <p>18 it's looking like in some PTEN families. So this</p> <p>19 shows us that she would be in the same class of</p> <p>20 individuals that may respond to certain types of</p> <p>21 treatments. So it's molecularly something is going</p> <p>22 on that may be attributed to the underlying</p> <p>23 homologous or combination deficiency and a PTEN</p> <p>24 variant that may be concerning.</p> <p>25 Q. And like the two previous plaintiffs that</p>
<p style="text-align: right;">Page 331</p> <p>1 A. Well, I don't know that I'd quite say that</p> <p>2 because there have been reports of ovarian cancer in</p> <p>3 Cowden families. Not every individual with Cowden</p> <p>4 syndrome has the skin findings or other conditions</p> <p>5 that are characteristics of these families, so there</p> <p>6 is not complete penetrance, but breast cancer is</p> <p>7 certainly one of the things that we see in Cowden</p> <p>8 families and we do see that in several of her</p> <p>9 relatives.</p> <p>10 Q. But Cowden syndrome is a specific</p> <p>11 syndrome --</p> <p>12 A. It is.</p> <p>13 Q. -- representing the gene mutation, and there</p> <p>14 are certain criteria for diagnosis of Cowden</p> <p>15 syndrome in an individual, correct?</p> <p>16 A. There is certain clinical characteristics</p> <p>17 and then that combined with genotype or genetic data</p> <p>18 can help, but certainly some family members may not</p> <p>19 express all of those things.</p> <p>20 Q. Agree we don't know about all the family</p> <p>21 members.</p> <p>22 A. And herself, we don't know all the complete</p> <p>23 data.</p> <p>24 Q. What are the criteria to diagnose Cowden</p> <p>25 syndrome clinically?</p>	<p style="text-align: right;">Page 333</p> <p>1 we've discussed, there is no reason to believe that</p> <p>2 if Ms. Judkins did have an HBOC, that she could not</p> <p>3 have other contributing causes; is that correct?</p> <p>4 A. I think as we've talked about, a woman can</p> <p>5 have a genetic predisposition and also have other</p> <p>6 risk factors.</p> <p>7 Q. In fact, they have to have another risk</p> <p>8 factor or a spurious cause for the development of</p> <p>9 ovarian cancer even with a genetic mutation?</p> <p>10 MR. JAMES: Just objection to the form</p> <p>11 there.</p> <p>12 A. If I could just go back to basics of epi of</p> <p>13 ovarian cancer, one of the biggest risk factors is</p> <p>14 age and being a woman, so, yes, there are other</p> <p>15 factors. I don't know about the spurious wording</p> <p>16 that you threw in there, but yes, a woman can have a</p> <p>17 genetic predisposition and have other risk factors</p> <p>18 for the disease that contribute to her ovarian</p> <p>19 cancer.</p> <p>20 MR. JAMES: I think you meant sporadic.</p> <p>21 MS. THOMPSON: Well, other experts say</p> <p>22 spurious and I don't like it either.</p> <p>23 MR. JAMES: Very good.</p> <p>24 Q. Age or unknown causes as well?</p> <p>25 A. Yeah, yet to be identified.</p>

<p style="text-align: right;">Page 334</p> <p>1 Q. To be identified. Okay. And just to be 2 clear, you're not opining that Ms. Judkins has 3 Cowden syndrome, are you? 4 A. I'd want to know more about the 5 pathogenicity of the mutation and, you know, truly 6 an evaluation by a geneticist would be helpful to 7 evaluate that. 8 Q. And I don't believe I asked you, if I did, I 9 apologize and hopefully you don't mind answering it 10 again: Is the PTEN variant a possible cause of her 11 ovarian cancer, in your opinion? 12 A. Yes, I believe it is a possibility that 13 contributed to her cancer. 14 Q. Can you answer the question to a reasonable 15 degree of medical certainty is the PTEN variant a 16 contributing cause of her ovarian cancer? 17 A. I believe it may have contributed just like 18 her family history that we've talked about, and this 19 is a high risk family. 20 Q. Okay. So possible is still your best -- 21 A. Yes. 22 Q. -- best description there, and that's fine. 23 I do not want to put words in your mouth. 24 And then next plaintiff is Ms. Newsome, and 25 we both have to be careful about calling plaintiffs</p>	<p style="text-align: right;">Page 336</p> <p>1 monoallelic germline mutation combined with a 2 somatic MUTYH mutation may also contribute to 3 ovarian cancer development and therapeutic response. 4 And I do recall finding a study which 5 basically showed these monoallelic mutations in this 6 gene have been reported in women with ovarian and 7 breast cancer, so I did find a report of that and 8 that's Citation 79. 9 Q. And same question with the VUS in the MUTYH: 10 Can you testify to a reasonable degree of medical 11 certainty that that monoallelic gene mutation is a 12 cause of her ovarian cancer? 13 A. It may have been contributed. It's a 14 possibility -- 15 Q. A possibility? 16 A. -- that we can't discount and that's what I 17 say in my last sentence. It's also noteworthy, as I 18 put in the text, that she does have a family history 19 of renal cell carcinoma, which has been seen in 20 MUTYH mutation carriers. Additionally, she has a 21 distant relative who has been diagnosed with ovarian 22 cancer as well. 23 Q. Okay. So in Ms. Newsome's family history, 24 you discuss a maternal grandmother that had been 25 diagnosed with ovarian cancer but lived to 106</p>
<p style="text-align: right;">Page 335</p> <p>1 patients, I would assume. 2 Ms. Newsome, endometrioid adenocarcinoma, 3 diagnosed as page 53, and she had germline testing. 4 She had a variant of -- a VUS in the MUTYH, correct? 5 A. Yes. 6 Q. And that was a monoallelic mutation, 7 correct? 8 A. Yes. 9 Q. Is there any literature that associates a 10 monoallelic MUTYH gene mutation, the VUS, with 11 ovarian cancer? 12 A. So mostly what I've seen is with regard to 13 biallelic mutations, but some studies or I would say 14 one key study that I do cite earlier in my report 15 talks about monoallelic mutations and then having 16 what we call a second hit in the tumor as 17 contributing to ovarian cancer specifically. This 18 plaintiff, I don't believe, had tumor testing but 19 there is plausibility that an individual with a 20 monoallelic mutation could develop ovarian cancer. 21 Q. From a second hit -- 22 A. Possibly. 23 Q. -- in the same area, you said? 24 A. Yes, and that's Hutchcraft, et al., where -- 25 that I'm talking about at Citation 78, where a</p>	<p style="text-align: right;">Page 337</p> <p>1 years. Has -- is that documented anywhere in her 2 records or any information that you've seen on 3 Ms. Newsome? 4 A. I'm not recalling at the moment where I read 5 that but either in her medical records or in her 6 depo. I'm not recalling correctly at the moment but 7 I do recall seeing that. 8 Q. Do you recall Ms. Newsome testifying that 9 she had some type of gyn cancer in her deposition? 10 A. She herself as in the plaintiff -- 11 Q. No, the maternal -- 12 A. -- or this relative? 13 Q. The maternal grandmother -- the maternal 14 great aunt. Sorry? 15 A. I remember seeing ovarian cancer in this 16 relative somewhere in the records. 17 Q. And so your last -- 18 A. It looks like it was in the deposition 19 transcript. It's right in front of my face, Page 20 124 through 125. 21 Q. And then your conclusion with Ms. Newsome: 22 Taken together, the possibility remains that there 23 is a familial or inherited susceptibility to the 24 cancers... 25 Are you -- you're referring to her ovarian</p>

<p style="text-align: right;">Page 338</p> <p>1 cancer. Is there evidence that Ms. Newsome had 2 other cancers? 3 A. Not herself but there is a family history 4 also of renal cell carcinoma, and that's been seen 5 in MUTYH carriers. It's also been seen in families 6 with Von Hippel-Lindau who have mutations in the VHL 7 gene. That gene was not evaluated as part of the 8 panel she had testing for. 9 Q. The cancers plural is referring to the 10 family members? 11 A. Absolutely. 12 Q. Not Ms. Newsome? 13 A. Yes. Yes. 14 Q. I just wanted to make sure that was clear. 15 A. Correct. 16 Q. And you're not suggesting that Ms. Newsome 17 has Von Hippel-Lindau syndrome, are you? 18 A. It's a possibility based on the family 19 history but I'm not sitting here today saying that 20 she has that. 21 Q. Okay. And similar to Cowden, that is a 22 genetic syndrome with specific phenotypical 23 manifestations, correct? 24 A. Exactly. That would be in the differential 25 diagnosis and I am trying to be comprehensive as I</p>	<p style="text-align: right;">Page 340</p> <p>1 A. Right. 2 MS. THOMPSON: We'll go ahead and mark this 3 as Exhibit 45. 4 (Permuth Exhibit 45 was marked for identification.) 5 BY MS. THOMPSON: 6 Q. The conclusion of Camargo was that the 7 evidence supported IARC's 2012 conclusion; is that 8 correct? 9 A. That's their conclusion, yes. 10 Q. And stated in the second paragraph of the 11 first page: The association between ovarian cancer 12 risk and asbestos exposure was addressed by the 13 monograph's Working Group that was convened in March 14 2009 by IARC. After considering the potential role 15 of chance, confounding and other forms of bias, the 16 Working Group concluded that the evidence is 17 sufficient for a causal association between 18 occupational exposure to asbestos and ovarian 19 cancer. 20 Correct? 21 A. That's what it says. 22 Q. And in terms of mechanism, if we turn to the 23 last page, first column: Pathophysiologic 24 mechanisms by which asbestos may confer 25 susceptibility to ovarian cancer have been proposed.</p>
<p style="text-align: right;">Page 339</p> <p>1 would as a clinician in assessing their personal and 2 family history. 3 Q. And there's nothing in Ms. Newsome's records 4 regarding the possibility of a genetic syndrome, 5 correct, including Von -- 6 A. Von Hippel-Lindau. 7 Q. -- Hippel-Lindau syndrome? 8 MR. JAMES: Just objection to form there. 9 A. I don't recall at the moment what the 10 genetic counselors may or may not have said about 11 her and that possibility, so I just don't recall at 12 the moment. 13 Q. She has not been diagnosed with that 14 syndrome? 15 A. Oh, not that I know of, correct. 16 MS. THOMPSON: Okay. Let's take a quick 17 break, please. 18 (Recess from 6:23 p.m. until 6:40 p.m.) 19 BY MS. THOMPSON: 20 Q. Dr. Permuth, I'm going to ask you a little 21 bit about asbestos studies that you have reviewed. 22 You reviewed Camargo, correct? 23 A. Yes. 24 Q. Published shortly after that IARC review, 25 correct?</p>	<p style="text-align: right;">Page 341</p> <p>1 They relate mainly to the hypothesis that the 2 persistent presence of asbestos fibers in ovarian 3 cancer cause chronic inflammation. This hypothesis 4 is supported by reports of asbestos fibers in the 5 ovaries of woman occupationally and 6 nonoccupationally exposed to asbestos. 7 And that is proposed by these authors as a 8 hypothesis but a possible mechanism, correct? 9 A. Yes, I see that hypothesis is mentioned. 10 Q. And: Retrograde movement of particles 11 through the reproductive tract to the ovaries has 12 been suggested, with two cites. 13 And we've discussed that at length today, 14 correct? 15 A. Yeah, and I do see they admittedly say: The 16 mechanism of transportation of asbestos fibers to 17 the ovary is not clearly understood. 18 Q. And: The mechanism is supported by the 19 findings of in vivo studies in animal models 20 demonstrating changes in the ovaries of guinea pigs 21 and rabbits after perineal injection of asbestos 22 fibers, with a citation. 23 And: In addition, perineal exposure to 24 talc, which may in the past have contained asbestos 25 or talc fibers, has also been associated in a number</p>


<p style="text-align: right;">Page 342</p> <p>1 of studies with an increased risk of ovarian cancer.</p> <p>2 I think we've already established that you</p> <p>3 do not believe talc or asbestos cause ovarian</p> <p>4 cancer; is that right?</p> <p>5 A. Correct.</p> <p>6 Q. But the Camargo authors at least give a</p> <p>7 possible mechanism, would you agree?</p> <p>8 MR. JAMES: Just object to form.</p> <p>9 A. They provide a purported hypothesis for a</p> <p>10 mechanism.</p> <p>11 Q. And we discussed earlier that the Reid 2009</p> <p>12 paper did examine the potential for</p> <p>13 misclassification and reported none of the cancer</p> <p>14 specimens that he looked at had been misclassified</p> <p>15 in their study. Do you recall that discussion</p> <p>16 earlier?</p> <p>17 A. I do recall you bringing that up.</p> <p>18 MR. JAMES: Did you say Reid '09?</p> <p>19 MS. THOMPSON: Reid '09.</p> <p>20 A. I said I do recall you bringing that up.</p> <p>21 Q. Okay. I'm sorry. I thought you were</p> <p>22 still --</p> <p>23 A. That's okay.</p> <p>24 Q. -- had not finished.</p> <p>25 And then the conclusion: Based on our</p>	<p style="text-align: right;">Page 344</p> <p>1 facts not in evidence.</p> <p>2 A. I don't recall that.</p> <p>3 Q. And in the summary they discuss the Working</p> <p>4 Group's conclusion and state below it: The fact</p> <p>5 that asbestos causes certain cancers is undisputed,</p> <p>6 even if the pathogenesis requires further</p> <p>7 elucidation. Some of the clearest evidence of</p> <p>8 increased risk due to asbestos exposure has been in</p> <p>9 organs with direct exposure to asbestos dust, such</p> <p>10 as pleural malignant mesothelioma and laryngeal</p> <p>11 cancer.</p> <p>12 You agree that asbestos exposure has also</p> <p>13 been associated with peritoneal mesothelioma,</p> <p>14 correct?</p> <p>15 A. Yes, I'm aware of those studies.</p> <p>16 Q. And the misclassification issue that's being</p> <p>17 discussed is peritoneal mesotheliomas being</p> <p>18 diagnosed as ovarian cancers, right?</p> <p>19 A. Yes.</p> <p>20 Q. And the reverse, ovarian cancers being</p> <p>21 misdiagnosed as peritoneal mesotheliomas, right?</p> <p>22 A. I guess it could go both ways.</p> <p>23 Q. And in fact, Slomovitz, on the last page,</p> <p>24 next to last paragraph says: Given the quality of</p> <p>25 the evidence, the counterargument could be made -</p>
<p style="text-align: right;">Page 343</p> <p>1 sensitivity analysis, it appears unlikely that our</p> <p>2 results can be fully explained by misclassification</p> <p>3 of ovarian cancer and perineal mesothelioma or other</p> <p>4 sources of bias and confounding.</p> <p>5 A. I don't have that article in front of me.</p> <p>6 Q. This is from Camargo.</p> <p>7 A. Oh, I thought we were just talking about</p> <p>8 Reid.</p> <p>9 Q. No. We were talking about Camargo.</p> <p>10 A. Okay.</p> <p>11 Q. And these authors' conclusion.</p> <p>12 A. Which is different from the conclusion from</p> <p>13 Reid, et al., who do not support IARC's statement.</p> <p>14 Q. And Reid based that lack of support on the</p> <p>15 misclassification, is that what you recall?</p> <p>16 A. That's part of the answer, yeah.</p> <p>17 Q. Okay. You did review the Slomovitz review</p> <p>18 article, correct?</p> <p>19 A. Yes.</p> <p>20 MS. THOMPSON: I'll mark that 46.</p> <p>21 (Permut Exhibit 46 was marked for identification.)</p> <p>22 BY MS. THOMPSON:</p> <p>23 Q. Do you know that the authors of this paper</p> <p>24 are J&J consultants?</p> <p>25 MR. JAMES: Objection to form and assumes</p>	<p style="text-align: right;">Page 345</p> <p>1 namely, that the incidence of the rates of ovarian</p> <p>2 cancer is actually much higher, and that the</p> <p>3 peritoneal malignant mesothelioma cases are actually</p> <p>4 misdiagnosed ovarian cancers.</p> <p>5 So Slomovitz would agree with the statement</p> <p>6 I have just made, correct?</p> <p>7 MR. JAMES: Just object to form.</p> <p>8 A. It seems so.</p> <p>9 Q. And what Slomovitz seems to be -- his major</p> <p>10 criticism of the IARC Working Group is the</p> <p>11 conclusion that there is a clear causal association</p> <p>12 between ovarian cancer and heavy occupational</p> <p>13 exposure to asbestos, correct?</p> <p>14 A. Correct.</p> <p>15 Q. Is there any mention in the IARC 2012</p> <p>16 Working Group monograph that they are only</p> <p>17 considering heavy occupational exposures to</p> <p>18 asbestos?</p> <p>19 A. I don't recall at the moment. I know</p> <p>20 earlier we talked about occupational and some</p> <p>21 environmental exposure.</p> <p>22 Q. Do you have any evidence that exposure to</p> <p>23 the ovaries would be greater with occupational</p> <p>24 exposure than it would be with perineal talc use?</p> <p>25 MR. JAMES: Objection to form.</p>

<p style="text-align: right;">Page 346</p> <p>1 A. Could you repeat your question? I'm not 2 sure I'm understanding. 3 Q. Yeah, and if you don't know, that's fine, 4 too. Do you have any evidence that occupational 5 exposure to the ovaries is greater than exposure to 6 the ovaries from perineal talcum powder dusting? 7 MR. JAMES: Just same objection, please. 8 A. Yeah, I'm unclear on that. 9 Q. Okay. And then Slomovitz, in the last 10 paragraph, goes on to say: While there is an 11 observed statistical association between asbestos 12 and ovarian cancer, it is weak and inconsistent. 13 Further scientific investigation is needed to 14 clarify the causal association of asbestos and 15 ovarian cancer. 16 Is Slomovitz in any way saying that talcum 17 powder with asbestos is safe? 18 MR. JAMES: Just objection to the form. 19 A. I don't believe he's saying that. 20 Q. There have been some other recent 21 publications on ovarian cancer and its relationship 22 to asbestos. Did you review the Turati paper? 23 A. Yes. 24 Q. And the Turati paper found that the 25 overall -- and the Turati paper was a meta-analysis,</p>	<p style="text-align: right;">Page 348</p> <p>1 asbestos fibers have been found in the ovaries, the 2 next to the last paragraph, correct? 3 A. What page are we on? 4 Q. The last page of the paper, the next to the 5 last paragraph. 6 A. Yes, I see that. 7 Q. And next to that it states -- these authors 8 state: Asbestos fibers have been found in the 9 ovaries. These may derive through the mesothelioma 10 and also possibly by retrograde movement through the 11 reproductive tract. 12 And the authors say: The latter mechanism 13 being, however, likely negligible for occupational 14 exposure. 15 And you would agree with that statement that 16 it's unlikely for occupational exposure, correct? 17 A. I guess we'd be talking a different mode of 18 transport. 19 Q. Is the study of occupational exposure to 20 asbestos relevant to whether asbestos can cause 21 ovarian cancer if it's contained in talc? 22 MR. JAMES: Objection to form. 23 A. I considered that data but, again, it's very 24 different than a perineal administration of talc. 25 Q. Did you look at the Kim study from 2023?</p>
<p style="text-align: right;">Page 347</p> <p>1 correct? 2 A. It's an updated systematic review. 3 Q. Updated systematic review. It's a pooled 4 analysis actually, and if you will look at the force 5 plot on Page 4. 6 A. I don't have the article in front of me. 7 Q. I can give it to you. 47 is the Turati 8 paper published in 2023. 9 (Permuth Exhibit 47 was marked for identification.) 10 BY MS. THOMPSON: 11 Q. As we said, it's a pooled analysis of 18 12 publications, and if you look at the force plot on 13 Page 4 -- 14 A. Yes. 15 Q. Looking at the overall risk ratio, it's 1.79 16 with a confidence interval 1.38 to 2.31, so that's a 17 statistically increased risk, at least found in this 18 meta-analysis, correct? 19 A. I see that there, but I also noted in my 20 report on Page 50 that higher SMRs were estimated in 21 Europe and Asia while ovarian cancer mortality was 22 actually lower in the United States and Australia, 23 and it was actually showing SMRs less than 1. 24 Q. Okay. And again, I'm just talking about 25 what's reported in this paper. It states that</p>	<p style="text-align: right;">Page 349</p> <p>1 A. I don't recall at the moment. 2 (Permuth Exhibit 48 was marked for identification.) 3 THE WITNESS: Thank you. 4 BY MS. THOMPSON: 5 Q. The Kim study is a review article: 6 "Asbestos Exposure and Ovarian Cancer: A 7 Meta-analysis." 8 Do you see that? 9 A. Yes. 10 Q. And the conclusion that we'll look at from 11 the abstract is: This meta-analysis provides 12 evidence of a significant association between 13 asbestos exposure and ovarian cancer mortality. 14 While the possibility of misdiagnoses in earlier 15 studies cannot be completely ruled out, recent 16 findings suggest a robust correlation between 17 asbestos exposure and ovarian cancer. 18 Are these -- is that what the authors of the 19 Kim meta-analysis conclude? 20 A. This is the first time I've seen this. 21 That's what they conclude. I would also note that 22 significant heterogeneity was noted between studies 23 which really should preclude them from being 24 combined in an analysis like this. 25 Q. Are you familiar with a Cogliano study?</p>

<p style="text-align: right;">Page 350</p> <p>1 A. I don't recall that.</p> <p>2 MS. THOMPSON: We'll mark that 49.</p> <p>3 (Permuth Exhibit 49 was marked for identification.)</p> <p>4 BY MS. THOMPSON:</p> <p>5 Q. This article was published in 2011. It's</p> <p>6 titled "Preventable Exposures Associated With Human</p> <p>7 Cancers." If you will turn to the chart on</p> <p>8 Page 1826, the cancer sites are listed with the</p> <p>9 carcinogenic agents that have been identified by</p> <p>10 IARC, and with the ovary site, what are the</p> <p>11 carcinogenic agents with sufficient evidence in</p> <p>12 humans? Can you see that?</p> <p>13 A. I see it.</p> <p>14 Q. I'll just represent there are: Asbestos</p> <p>15 (all forms); estrogen menopausal therapy; tobacco</p> <p>16 smoking.</p> <p>17 And if you look at the agents with limited</p> <p>18 evidence in humans, it's talc-based body powder</p> <p>19 (perineal use); X radiation and gamma radiation.</p> <p>20 So that's a very small number of exposures</p> <p>21 that IARC has identified as causing ovarian cancer,</p> <p>22 would you agree?</p> <p>23 A. I might --</p> <p>24 MR. JAMES: Just objection to the form</p> <p>25 there.</p>	<p style="text-align: right;">Page 352</p> <p>1 evidence, and that doesn't mean -- when IARC uses</p> <p>2 limited evidence, they're not saying there isn't</p> <p>3 evidence. They're saying there is evidence but it's</p> <p>4 limited so that it doesn't -- isn't sufficient to</p> <p>5 make a Group 1 known carcinogen.</p> <p>6 Are you familiar with that classification</p> <p>7 system?</p> <p>8 MR. JAMES: Just objection to form.</p> <p>9 A. I am.</p> <p>10 Q. You discuss NCI, American Cancer Society,</p> <p>11 and CDC as not listing talc as one of their risk</p> <p>12 factors, correct?</p> <p>13 A. Correct.</p> <p>14 Q. Do any of those cites say talc is safe?</p> <p>15 A. The words "talc is safe" are not on there,</p> <p>16 and in fact, I don't know, I'd have to look at the</p> <p>17 cites to even say if they even mention talc, or if</p> <p>18 it's just insufficient evidence.</p> <p>19 Q. Do you know whether NCI states that asbestos</p> <p>20 causes cancer of the ovary?</p> <p>21 A. I don't recall what NCI says about asbestos</p> <p>22 in the ovary at this moment.</p> <p>23 Q. Did you look for that?</p> <p>24 A. At one point I probably did.</p> <p>25 MS. THOMPSON: Exhibit 50.</p>
<p style="text-align: right;">Page 351</p> <p>1 A. My eyes are just looking at talc-based</p> <p>2 powder, perineal use, and limited evidence in</p> <p>3 humans.</p> <p>4 Q. Well, that's what IARC found in 2010,</p> <p>5 correct?</p> <p>6 A. Yes.</p> <p>7 Q. But IARC describes a possible carcinogen as</p> <p>8 an agent associated with human cancers. Do you know</p> <p>9 that?</p> <p>10 MR. JAMES: Objection to the form.</p> <p>11 A. I know that in this column here they are</p> <p>12 showing there is limited evidence in humans, so</p> <p>13 they're showcasing that in this table. I haven't</p> <p>14 read the rest of this article to say more about it,</p> <p>15 though.</p> <p>16 Q. Okay. Based on looking at the abstract:</p> <p>17 Based on IARC's review, we listed the cancer sites</p> <p>18 associated with each agent and then rearranged this</p> <p>19 information to list the known --</p> <p>20 Which would be the Group 1, correct, with</p> <p>21 sufficient evidence?</p> <p>22 A. (Nodding head.)</p> <p>23 Q. -- and suspected causes of cancer at each</p> <p>24 site.</p> <p>25 The suspected are the agents with limited</p>	<p style="text-align: right;">Page 353</p> <p>1 (Permuth Exhibit 50 was marked for identification.)</p> <p>2 BY MS. THOMPSON:</p> <p>3 Q. This is from the NCI website: Which cancers</p> <p>4 are associated with exposure to asbestos? Exposure</p> <p>5 to asbestos causes most mesotheliomas (a relatively</p> <p>6 rare cancer of the thin membranes that line the</p> <p>7 chest and abdomen); it can also cause cancers of the</p> <p>8 lung, larynx and ovary.</p> <p>9 A. But it's not surprising it cites IARC and</p> <p>10 the document that we talked about.</p> <p>11 Q. But NCI does list asbestos as causing cancer</p> <p>12 of the ovary, correct?</p> <p>13 A. It does say that here.</p> <p>14 Q. And American Cancer Society, did you look on</p> <p>15 the American Cancer Society website as to whether</p> <p>16 they list asbestos as a cause of ovarian cancer?</p> <p>17 MS. THOMPSON: 51.</p> <p>18 A. At one point I may have seen that.</p> <p>19 (Permuth Exhibit 51 was marked for identification.)</p> <p>20 BY MS. THOMPSON:</p> <p>21 Q. And there is a question in this Q & A on</p> <p>22 this Page 3: What about asbestos in talc products?</p> <p>23 And it states: The main ingredient in</p> <p>24 talcum powder (and some other cosmetic products) is</p> <p>25 talc, a mineral that is mined from the earth. In</p>

<p style="text-align: right;">Page 354</p> <p>1 its natural form, talc can sometimes contain 2 asbestos. Since the mid '70s, all talc used in 3 cosmetic products in the United States is supposed 4 to have been free from detectable levels of 5 asbestos. However, concerns have been raised about 6 a possible increased risk of ovarian cancer among 7 women who have regularly applied talcum powder in 8 the genital area. 9 And this is the American Cancer Society in 10 the asbestos section, right? 11 A. They've mentioned this. 12 MR. JAMES: Just objection to form. 13 Q. And in the -- on Page 4, in "Other types of 14 cancer" it states: Studies have also found clear 15 links between workplace exposure to asbestos and 16 cancers of the larynx and ovaries. 17 Correct? 18 A. That's what it says. I'm confused about the 19 clear link part. 20 Q. We're just looking at American Cancer 21 Society since -- 22 A. Yes. 23 Q. -- you have relied on agencies and societies 24 to some degree. 25 Do you know what CDC says about asbestos and</p>	<p style="text-align: right;">Page 356</p> <p>1 Q. Page 51, there is a chart on carcinogenicity 2 of asbestos listing the IARC designation as a Group 3 1 known human carcinogen, correct? 4 A. Yeah. 5 Q. And the US EPA as a Group A known human 6 carcinogen, correct? 7 A. Yes. 8 Q. And the three processes hypothesized to 9 account for asbestos pathogenicity are, according to 10 CDC/ATSDR: Number one, direct interaction with 11 chromosomes; generation of reactive oxygen species; 12 three, other cell-mediated mechanisms (especially 13 inflammation). 14 Do you agree that that's what CDC/ATSDR 15 views as the key points of the carcinogenicity of 16 asbestos? 17 A. I see that here. I'm also noting at the top 18 that they are referring on this page to 19 mesotheliomas and lung cancer and asbestos. 20 Q. Well, we're going to get to that. This is, 21 I think, just the carcinogenicity of asbestos, and 22 the other key point, that asbestos is genotoxic and 23 carcinogenic. 24 And if you turn to Page 70, under Key Points 25 of this section: Asbestos exposure is a known risk</p>
<p style="text-align: right;">Page 355</p> <p>1 cancer of the ovary? 2 A. I don't recall at the moment. 3 (Permuth Exhibit 52 was marked for identification.) 4 BY MS. THOMPSON: 5 Q. Do you know what the ATSDR is? 6 A. Agency for Toxic Substances and Disease 7 Registry. 8 Q. I'm impressed. You read it on the -- 9 Are you aware that -- I have to look at 10 it -- the ATSDR is an agency affiliated with CDC? 11 MR. JAMES: Objection; form. 12 A. I'm not aware of that. 13 Q. Well, you can see that the ATSDR website is 14 ATSDR.CDC.gov, correct? 15 A. On Page 2, if that's what you're referring 16 to, I see that now. 17 Q. And you agree it's a governmental agency, 18 right, at least? 19 A. It appears to be. 20 Q. And under the Acknowledgments the authors 21 are all CDC/ATSDR authors, planners, commentators, 22 et cetera, correct? 23 MR. JAMES: Just objection to form. 24 A. This is the first time I'm seeing this, so I 25 can't comment on that.</p>	<p style="text-align: right;">Page 357</p> <p>1 factor for laryngeal cancer and ovarian cancer. 2 Do you agree that's what this document 3 states? 4 A. That's what this states. I don't see the 5 citations associated with it. 6 Q. Does this -- well, we don't want to look at 7 this entire document, but do you suspect anywhere in 8 this document it would say that talc with asbestos 9 is safe or asbestos is not associated with ovarian 10 cancer? 11 MR. JAMES: Just hold on. Objection to 12 form; speculation. 13 A. That would be speculative for me to say 14 that. 15 MS. THOMPSON: Okay. I'm done. 16 MR. JAMES: All good? Okay. 17 MS. THOMPSON: I apologize for rushing 18 through that. 19 THE WITNESS: That's okay. 20 MR. JAMES: I'll have just a few questions. 21 Brandy, are you planning to have any 22 questions? 23 MS. HARRIS: No, thank you. 24 MR. JAMES: Okay. 25 CROSS-EXAMINATION</p>

<p style="text-align: right;">Page 358</p> <p>1 BY MR. JAMES:</p> <p>2 Q. All right. Dr. Permuth, in your extensive</p> <p>3 report you set forth your analysis of the studies</p> <p>4 that examine ovarian cancer by histology subtype to</p> <p>5 the extent those studies measure histology, correct?</p> <p>6 A. Correct.</p> <p>7 Q. And is your basic conclusion on</p> <p>8 histology-specific associations that the</p> <p>9 associations vary and are inconsistent in the</p> <p>10 literature?</p> <p>11 A. Yeah, and I think, you know, throughout my</p> <p>12 report I comment on that in the text and in a table</p> <p>13 that I've designated for histology-specific</p> <p>14 estimates.</p> <p>15 Q. With respect to the question of temporality,</p> <p>16 I know you were asked some questions about that and</p> <p>17 you note usually met in your table at the end.</p> <p>18 Is the fundamental point that with a</p> <p>19 retrospective case-control study, if a case is asked</p> <p>20 if they ever used talc and they have ovarian cancer,</p> <p>21 that there's no guarantee in asking that question</p> <p>22 that talc use preceded the ovarian cancer disease?</p> <p>23 A. I agree with that. One would need to also</p> <p>24 ask about the age at first use.</p> <p>25 Q. And is that -- we talked about the Huncharek</p>	<p style="text-align: right;">Page 360</p> <p>1 which Ms. Thompson went over with you today,</p> <p>2 correct?</p> <p>3 A. That's correct.</p> <p>4 Q. And at the end of the day -- actually, just</p> <p>5 to be careful with your wording, on Page 69 of your</p> <p>6 report, the second paragraph -- I'm sorry. Are you</p> <p>7 there?</p> <p>8 A. I am there.</p> <p>9 Q. You note: Indeed, IARC specifically noted</p> <p>10 that evidence to support this theory of migration</p> <p>11 was weak.</p> <p>12 You say that in your report, correct?</p> <p>13 A. Yes.</p> <p>14 Q. And that is consistent with the opinion that</p> <p>15 you're offering today, correct?</p> <p>16 A. It is.</p> <p>17 Q. You were not convinced or you do not find</p> <p>18 compelling evidence of the migration hypothesis; is</p> <p>19 that fair?</p> <p>20 A. That is fair.</p> <p>21 Q. With respect to the question about sort of</p> <p>22 multifactorial risks, do you believe that there is</p> <p>23 any evidence that talc causes or contributes to</p> <p>24 ovarian cancer, perineal talc use?</p> <p>25 A. I do not.</p>
<p style="text-align: right;">Page 359</p> <p>1 paper, but is that another reason why you have</p> <p>2 classified temporality as usually you have those</p> <p>3 reservations about retrospective studies?</p> <p>4 A. Correct, just trying to be comprehensive</p> <p>5 about my assessment.</p> <p>6 Q. With respect to the meta-analyses, you were</p> <p>7 asked some questions about how they looked at cohort</p> <p>8 studies and you were asked specifically about</p> <p>9 Penninkilampi. Do you recall that?</p> <p>10 A. I do.</p> <p>11 Q. And do you note in your report and is it</p> <p>12 true that Penninkilampi actually does not factor in</p> <p>13 the Gates 2010 additional follow-up?</p> <p>14 A. That's correct.</p> <p>15 Q. With respect to the issue of migration,</p> <p>16 we've talked a lot about it today. I don't intend</p> <p>17 to unearth it further, hopefully, too much, but your</p> <p>18 opinions on migration are set forth in your report,</p> <p>19 correct?</p> <p>20 A. Correct.</p> <p>21 Q. You also note in your report IARC's</p> <p>22 commentary on migration, correct?</p> <p>23 A. Correct.</p> <p>24 Q. And you reviewed the IARC 2010 monograph and</p> <p>25 they include a discussion of the studies, many of</p>	<p style="text-align: right;">Page 361</p> <p>1 Q. Do you believe that there is any evidence</p> <p>2 that talc interacts with any other risk factors to</p> <p>3 cause or contribute to ovarian cancer?</p> <p>4 A. I do not.</p> <p>5 Q. Do you find any -- have you found any</p> <p>6 compelling evidence on that question of interaction</p> <p>7 with other risk factors, whether they be</p> <p>8 environmental, genetic or familial?</p> <p>9 A. I have not.</p> <p>10 Q. With respect to your case-specific questions</p> <p>11 that Ms. Thompson went -- excuse me, case-specific</p> <p>12 opinions that Ms. Thompson went over with you today,</p> <p>13 are all of the opinions that you intend to offer at</p> <p>14 trial fairly set forth in your report and</p> <p>15 additionally covered today with Ms. Thompson?</p> <p>16 A. Yes.</p> <p>17 Q. And I know you were asked some questions</p> <p>18 with respect to a couple of the last plaintiffs</p> <p>19 about possible and so forth. You have fairly</p> <p>20 summarized your conclusions in your report about how</p> <p>21 you feel about these plaintiffs' familial history</p> <p>22 and genetic risk, correct?</p> <p>23 A. I have.</p> <p>24 Q. And the opinions as you phrased them in your</p> <p>25 report, have you offered them to a reasonable degree</p>

<p style="text-align: right;">Page 362</p> <p>1 of medical certainty?</p> <p>2 A. I have.</p> <p>3 Q. And today has been a long day. Thank you</p> <p>4 for your patience. Having sat through today, do you</p> <p>5 continue to hold all of the opinions that you've set</p> <p>6 forth in your report?</p> <p>7 A. I do.</p> <p>8 Q. Okay. One more: You were asked some</p> <p>9 questions about the Reid papers on asbestos and</p> <p>10 IARC. Do you recall those questions?</p> <p>11 A. I do.</p> <p>12 Q. And just so it's clear, it's my</p> <p>13 understanding that Reid authored a paper in 2011; is</p> <p>14 that right? Do you recall the date? Just strike</p> <p>15 that to short-circuit this.</p> <p>16 On Page 45 of your report you discuss,</p> <p>17 following your discussion of Camargo, you also</p> <p>18 discuss Reid, correct?</p> <p>19 A. Right.</p> <p>20 Q. Ms. Thompson talked briefly with you about</p> <p>21 both of those papers, correct?</p> <p>22 A. Yes.</p> <p>23 Q. And your opinions on Reid relevant to your</p> <p>24 opinions in this case are set forth in your report,</p> <p>25 correct?</p>	<p style="text-align: right;">Page 364</p> <p>1 A. I did not know that.</p> <p>2 MS. THOMPSON: No further questions.</p> <p>3 MR. JAMES: Brandy, last chance?</p> <p>4 MS. HARRIS: No thank you.</p> <p>5 MS. THOMPSON: Dr. Permuth, I would also</p> <p>6 like to thank you for sitting this long of a day.</p> <p>7 It is important.</p> <p>8 THE WITNESS: Thank you.</p> <p>9 (Whereupon, the deposition concluded at</p> <p>10 7:14 p.m. EDT.)</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 363</p> <p>1 A. They are.</p> <p>2 Q. And that includes your discussion of Reid's</p> <p>3 notations on the suggestion of disease</p> <p>4 misclassification, correct?</p> <p>5 A. Yes.</p> <p>6 Q. And again, those opinions are in your</p> <p>7 report, correct?</p> <p>8 A. Yes.</p> <p>9 Q. And you hold those today, correct?</p> <p>10 A. Yes.</p> <p>11 MS. THOMPSON: One question. Do you know --</p> <p>12 MR. JAMES: Just give me one second.</p> <p>13 MS. THOMPSON: Oh, I thought you were</p> <p>14 finished. I'm sorry.</p> <p>15 MR. JAMES: Okay. Thank you for your time.</p> <p>16 That's all I have.</p> <p>17 REDIRECT EXAMINATION</p> <p>18 BY MS. THOMPSON:</p> <p>19 Q. I have one question. Were there any</p> <p>20 gynecologists on the 2010 IARC Working Group, to</p> <p>21 your knowledge?</p> <p>22 A. I don't recall offhand.</p> <p>23 Q. Do you know that IARC is meeting again this</p> <p>24 summer to review perineal use of talc and the</p> <p>25 relationship with ovarian cancer?</p>	<p style="text-align: right;">Page 365</p> <p>1 C E R T I F I C A T E</p> <p>2 I, Susan D. Wasilewski, Registered</p> <p>3 Professional Reporter, Certified Realtime Reporter,</p> <p>4 Certified Manager of Reporting Services, Certified</p> <p>5 Realtime Captioner, and Florida Professional</p> <p>6 Reporter, hereby certify that the witness named</p> <p>7 herein appeared before me on Thursday,</p> <p>8 June 13, 2024, and was duly sworn.</p> <p>9 I FURTHER CERTIFY that I was authorized to</p> <p>10 and did stenographically report the examination of</p> <p>11 the witness named herein; that a review of the</p> <p>12 transcript was not requested; and that the foregoing</p> <p>13 transcript is a true record of my stenographic</p> <p>14 notes.</p> <p>15 I FURTHER CERTIFY that I am not related to</p> <p>16 or an employee of any of the parties, nor am I</p> <p>17 related to or an employee of any of the parties'</p> <p>18 attorneys or counsel connected with this action, nor</p> <p>19 am I financially interested in the outcome of this</p> <p>20 action.</p> <p>21 WITNESS my hand this 20th of June, 2024.</p> <p>22</p> <p>23</p> <p>24 </p> <p>25 Susan D. Wasilewski, RPR, CRR, CMRS, CRC, FPR</p>

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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